ANNUAL MANAGEMENT REPORT FOR THE SUBSISTENCE AND COMMERCIAL FISHERIES OF THE KUSKOKWIM AREA

2001

By:
Charles Burkey Jr.
Michael Coffing
Jeffrey Estensen
Roberta L. Fisher
Douglas B. Molyneaux

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AUTHORS

Charles Burkey Jr. was the Kuskokwim Area Management Biologist for the Alaska Department of Fish & Game, Division of Commercial Fisheries, P.O. Box 1467, Bethel, AK 99559-1467; e-mail, *charlie_burkey@fishgame.state.ak.us*

Michael Coffing is the Western Region Subsistence Resource Specialist for the Alaska Department of Fish & Game, Division of Subsistence, P.O. Box 1789, Bethel, AK 99559-1789; e-mail, *mike_coffing@fishgame.state.ak.us*

Jeffrey Estensen is the Assistant Kuskokwim Area Management Biologist for the Alaska Department of Fish & Game, Division of Commercial Fisheries, P.O. Box 1467, Bethel, AK 99559-1467; e-mail, *jeff_estensen@fishgame.state.ak.us*

Roberta L. Fisher is the Kuskokwim Area, Fish & Game Program Technician for the Alaska Department of Fish & Game, Division of Commercial Fisheries, P.O. Box 1467, Bethel, AK 99559-1467; e-mail, *bobbi_fisher@fishgame.state.ak.us*

Douglas B. Molyneaux is the Kuskokwim Area Research Biologist for the Alaska Department of Fish & Game, Division of Commercial Fisheries, 333 Raspberry Road, Anchorage, AK 99518-1599; e-mail, *doug_molyneaux@fishgame.state.ak.us*

OEO/ADA Statement

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PREFACE

The Division of Commercial Fisheries (CF) of the Alaska Department of Fish & Game (ADF&G) is responsible for the management of commercial and subsistence fisheries in the Kuskokwim Area. This annual management report details the activities of the CF Division in the Kuskokwim Area in 2001.

This report is one of a series of Annual Management Reports detailing the management activities of the Division of Commercial Fisheries staff in the Kuskokwim Area. The 1960-1974 management reports for the "Kuskokwim District" appear in the Arctic-Yukon-Kuskokwim Area report series. The 1975-1986 management reports appear in the Kuskokwim Area Annual Report series. The Annual Management Report became a part of the Regional Information Report Series in 1987.

Data presented in this report supersede information found in previous management reports. This report includes summary data from many research projects. Complete documentation of these projects and results appear in separate reports. The bibliography includes both referenced and unreferenced reports concerning the Kuskokwim Area fisheries. Some of the data presented are preliminary and may be presented with minor differences in future reports.

To simplify use of this report, the tabular data are separated into current year tables and appendices of historical data. The appendices are separated by fishery and fishing district. The appendices show annual comparisons and information that seldom change.

The ages of fish in this report are presented as both total age, year spawned to year recorded and in the European notation. In the European system, the number of winters in fresh water after hatching is followed by the number of winters in salt water. The fresh and salt-water winters are separated by a decimal point. To derive total age from the European system you must add the fresh and salt water winters and add one for the year of spawning. For example an age-1.3 chinook salmon's total age is 5 years; 1+3+1=5.

Important subsistence and commercial fisheries in the Kuskokwim Area include herring and salmon. Other marine and freshwater finfish are harvested primarily for subsistence use. A list of indigenous fishes found in the Kuskokwim Area is provided in Appendix A.1.

PART I. SALMON FISHERY

Description of Area and District Boundaries

The Kuskokwim Area includes the Kuskokwim River drainage basin and all waters of Alaska that flow into the Bering Sea between Cape Newenham and the Naskonat Peninsula, plus Nunivak and St. Matthew Islands (Figure 1). Commercial salmon fishing occurs in four districts in the area:

District 1, the Lower Kuskokwim River, consists of the Kuskokwim River from a line between Apokak Slough and Popokamiut, upstream to a line between ADF&G regulatory markers located at Bogus Creek, about nine miles above the Tuluksak River (Figure 2). The downstream boundary has been in effect since 1986 and the upstream boundary was established in 1994 (Appendix A.2). In conjunction with the establishment of the District 1 Registration and Reregistration regulation (5 AAC 07.370), District 1 was subdivided into two subdistricts. Subdistrict 1A consists of that portion of District 1 upstream from a line between regulatory markers located at the downstream end of Steamboat Slough to a line between ADF&G markers located at the mouth of Bogus Creek. Subdistrict 1B consists of that portion of District 1 upstream from a line from Apokak Slough at 60° 08.50' N. lat., 162° 11.75 W. long. to the southernmost tip of Eek Island to the Popokamiut at 60° 04.00 N. lat., 162° 28.00' W. long. to a line between ADF&G regulatory markers located at the downstream end of Steamboat Slough.

District 2, the Middle Kuskokwim River, consists of the Kuskokwim River from ADF&G regulatory markers located at the upstream entrance to the second slough on the west bank downstream from Kalskag to the regulatory markers at Chuathbaluk (Figure 3). The downstream boundary of District 2 was used for the first time in 1990 (Appendix A.2).

District 4, Quinhagak, consists of the waters of Kuskokwim Bay between the ADF&G regulatory markers at the northernmost edge of Oyak Creek and the southernmost edge of the mouth of the Arolik River. (Figure 4). The northern boundary was new in 2001 and the first boundary change since 1990 (Appendix A.2).

District 5 consists of the waters of Goodnews Bay (Figure 5). The District 5 boundaries are a line between the northernmost tip of South Spit and the southernmost tip of North Spit, and a line between the mouth of Ukfigag Creek and the mouth of the Tunulik River.

The letter code assigned to the Kuskokwim Area by the Commercial Fisheries Entry Commission is "W". It precedes the district number on the figures and in news releases (e.g. W-1). This helps the public differentiate between announcements for the Yukon River districts (Y) and the Kuskokwim River (W) districts.

Fishery Resources

Five species of Pacific salmon are harvested by commercial and subsistence fishers in the area; chinook or "king" salmon (*Oncorhynchus tshawytscha*), sockeye or "red" salmon (*O. nerka*), coho or "silver" salmon (*O. kisutch*), pink or "humpy" salmon (*O. gorbuscha*), and chum or "dog" salmon (*O. keta*). The Kuskokwim River drainage has the largest populations of chinook, sockeye, coho and chum salmon in the area. Pink salmon occur throughout the area with significantly larger returns in even years than in odd years. Little quantitative data on the population size of pink salmon is available because of the lack of commercial markets and interest by subsistence fishers. There are no commercial fisheries for rainbow trout (*O. mykiss*), sheefish (*Stenodus leucichthys*) or Dolly Varden (*Salvelinus malma*) in the Kuskokwim Area. The contribution of non-salmon species to the overall subsistence fishery is not well quantified throughout the Kuskokwim Area. However, subsistence harvest estimates based on community specific harvest surveys have been developed for Kwethluk (Coffing 1991), Akiachak (Coffing

2000), Bethel (Coffing 2001) and Quinhagak (Wagner 1991). There is a growing sport fishery targeting salmon and resident freshwater fish (Minard et al. 1998).

Management

Management of the Kuskokwim Area salmon fishery is complex because of the difficulty in determining run size and timing, harvesting of mixed stocks, overlapping multispecies salmon runs, allocation issues, and the immense size of the Kuskokwim River drainage (Appendix B.1). The overall goal of the Kuskokwim Area research and management programs is to manage the salmon runs for sustained yield under policies set forth by the Alaska Board of Fisheries. Information is not adequate at this time to determine the escapement levels needed to produce maximum sustained yield. The Alaska State Legislature and the Alaska Board of Fisheries have designated subsistence fishing as the highest priority among beneficial uses of the resource (A.S. 16.05.258). Management of the Kuskokwim Area commercial salmon fisheries must take a conservative approach to maintain the subsistence priority, and to provide for spawning escapements to sustain production of the resource (Appendix A.3).

Most fisheries within the Kuskokwim Area harvest salmon stocks that are several weeks and hundreds of miles from their spawning grounds. As with most mixed stock fisheries, some individual stocks may be under harvested or over harvested in relation to their abundance. It is not practical, except in a very generalized sense, to manage the stocks separately based on current knowledge.

The management objective for chinook, coho and chum salmon in Districts 1 and 2 is to achieve desired escapement objectives (Appendix A.3) and allow for the orderly harvest of fish surplus to spawning requirements. Due to its importance as a local food source, chinook salmon receives special consideration to insure that the commercial fishery does not significantly impact the subsistence fishery for this species. Sockeye and pink salmon are not actively managed in Districts 1 and 2. The management objective for chinook, coho and sockeye salmon in Districts 4 and 5 is to achieve desired escapement objectives (Appendix A.3) and allow for the orderly harvest of fish surplus to spawning requirements. Chum and pink salmon are not actively managed in Districts 4 and 5. Inseason management depends heavily on commercial catch data, test fisheries and run timing information. Run timing models are used inseason to predict the final escapement using the historical percentage of run passage for a particular date.

CF permanent full time staff assigned to the Kuskokwim Area includes one area management biologist, one area research biologist, two assistant area management biologists, two research project biologists and one program technician. In addition, approximately 25 seasonal employees are employed annually to assist in conducting various management and research projects. The staff aids in the enforcement of regulations in cooperation with the Department of Public Safety, Division of Fish and Wildlife Protection (FWP). Staff has also had increasing involvement with various non-profit groups and the United States Fish and Wildlife Service (USFWS) to develop and operate salmon escapement monitoring projects (Table 1).

SUBSISTENCE SALMON FISHERY

Background

From late May through mid-August, many households in the Kuskokwim Area are involved in harvesting, processing, and preserving of salmon for subsistence use. The seasonal movement of families from permanent winter communities to summer fishcamps situated along rivers and sloughs, continues to be a significant element of the annual subsistence harvest effort. Approximately 1,500 households in the Kuskokwim region annually harvest salmon for subsistence use. Many other households, which are not directly involved in catching salmon, participate by assisting family and friends with cutting, drying, smoking, and associated preservation activities (salting, canning and freezing). The subsistence salmon fishery in the Kuskokwim region is one of the largest and most important in the state. Division of Subsistence studies in the region indicate that fish contribute as much as 85% of the total pounds of fish and wildlife harvested in a community annually, and salmon as much as 53% of the total annual harvest. (Coffing 1991). The harvest of salmon for subsistence use is as much as 650 pounds per capita in some Kuskokwim River communities (Coffing et al 2001).

Information about the harvest and use of salmon in the Kuskokwim area is obtained primarily through annual household harvest surveys conducted by the Department of Fish and Game. More recently, the department has collaborated in this effort with the US Fish and Wildlife Service and local tribal organizations such as the Orutsararmuit Native Council (ONC) in Bethel to complete these surveys. These annual subsistence harvest surveys have been aimed at gathering data on the harvest and use of chinook, chum, sockeye, and coho salmon. Pink salmon are harvested in the Kuskokwim drainage; however, they are generally available only during even number years (ie 1998, 2000, 2002). Pink salmon are used when harvested when fishing for other salmon species.

There are 38 communities consisting of approximately 4,500 households within the Kuskokwim Area (Figure 1). Approximately 75% of the approximately 4,500 households in the region are situated within the drainage of the Kuskokwim River, Bethel is the largest community in the region, containing approximately 1,700 households. Much of the salmon fishing effort occurs within the mainstem of the Kuskokwim River, however, fishing also occurs in many of the tributaries that contain salmon. Residents of Quinhagak, Goodnews Bay, and Platinum, located along the south shore of Kuskokwim Bay, harvest salmon stocks primarily from the Kanektok, Arolik, and Goodnews River systems. Residents of Kipnuk, Kwigillingok and Kongiganak, located on the north Kuskokwim Bay harvest salmon from within the Kuskokwim River drainage and also from local drainages that drain into Kuskokwim Bay. Residents of Toksook Bay, Nightmute, Tununak, Newtok, Chefornak and Mekoryuk, situated near the Bering Sea Coast, harvest salmon from coastal waters as well as local tributaries.

Eligibility, Licenses, Permits, and Gear

Statewide eligibility criteria required that individuals be Alaskan residents for the proceeding 12 consecutive months before harvesting salmon for subsistence use. Licenses and permits have never been required for subsistence salmon fishing in the Kuskokwim Area, nor were any required

during 2001. Prior to 1990, there were additional restrictions on participation in the Kuskokwim salmon fishery. These are described in earlier annual management reports. The majority of individuals subsistence fishing for salmon in the Kuskokwim Area are residents of the area. People living in other parts of the state who have family or friends in the Kuskokwim region sometimes return to the area to assist friends or relatives with harvesting and processing of salmon.

Throughout the Kuskokwim area, salmon harvested for subsistence use could be caught using set gillnets, drift gillnets, beach seines, and fish wheels. Rod and reel (line attached to a line or pole) and handlines were added as legal subsistence gear in all of the Kuskokwim Area except that portion of the Kuskokwim River drainage upstream of the Tatlawiksuk River (this upriver portion was later included in March 2002) starting in 2000. In the Holitna, Kanektok, Arolik, and Goodnews River drainages, spears could also be used.

Throughout of the Kuskokwim Area, there were also no restrictions on the number of salmon that could be harvested annually by individual subsistence fishers or households. There were however, daily limits on the number of salmon and other fish that could be harvested from that portion of the Aniak River drainage upstream of Doestock Creek, using rod and reel gear from June 1 through August 31.

The total length of set or drift gillnets in use by an individual fisher could not exceed 50 fathoms. Unless changed by emergency order, gill nets used for harvesting salmon in the Kuskokwim Area could be of any size mesh. There were limits on the depth of gillnets. Gillnets with six-inch or smaller mesh could not be more than 45 meshes in depth and nets with greater than six-inch mesh could not be more than 35 meshes in depth. Fishers were required to have their name and address attached to all unattended gillnets and fish wheels.

During the 2001 season, there were also gear restrictions in effect during the three consecutive days per week during June and July when gillnets and fishwheels could not be used for harvesting salmon. During these closed salmon fishing days, fishers were restricted to using either hook and line gear or gillnets that were no longer than 60 feet in length and having a mesh size of 4 inches or less. These restrictions were in place during June and July throughout the Kuskokwim River drainage to minimize the harvest of chinook and chum salmon and to allow people to continue to harvest fresh fish such as whitefish and pike. All salmon that were caught using rod and reel gear and using these short "whitefish nets" could be kept.

Subsistence Salmon Fishing Schedule

During 2001, subsistence salmon fishing throughout the Kuskokwim River drainage was regulated by a fishing schedule as part of a salmon management rebuilding plan adopted by the Board of Fisheries in January 2001. The fishing schedule during 2001 provided for periods of four consecutive days per week that were opened to subsistence salmon fishing and 3 consecutive days per week when subsistence salmon fishing was closed to gillnet and fish wheel gear. The department polled the communities throughout the Kuskokwim River drainage for guidance on which three days would be most desirable. Based on their response and the recommendation of the Kuskokwim River Salmon Management Working Group, Wednesday through Saturday were

selected as the days open to subsistence salmon fishing. Subsistence fishing with rod and reel gear was not included in this schedule nor were other Kuskokwim River salmon fisheries.

The schedule that started the first week of June in District 1 was expanded to include all waters downstream of Chuathbaluk starting the second week of June and was expanded to include all waters of the entire Kuskokwim River drainage starting the third week of June. Some non-salmon tributaries in the lower and middle Kuskokwim drainage were not closed by this schedule. This schedule did not affect waters outside of the Kuskokwim River drainage. Some adjustments (more restrictive) were made to the schedule in mid July when it became apparent that additional steps were necessary to protect a poor chum salmon return. The department polled the communities throughout the Kuskokwim River drainage for guidance on which three days would be most desirable. Based on their response and the recommendation of the Kuskokwim River Salmon Management Working Group, Wednesday through Saturday were selected as the days open to subsistence salmon fishing. In addition, a poor chum and chinook salmon return in the George River drainage prompted a closure of subsistence fishing in that drainage for much of the season. The weekly fishing schedule ended August 1 and reverted back to a seven days per week fishing, except for periodic closures around the commercial fishing periods.

Compliance with the schedule was excellent. Department staff made specific efforts to inform the public through the newspaper and radio media starting in late March 2001 and continued these efforts through mid July. In addition, a color brochure describing the details of the fishing schedule was also included with each subsistence salmon fishing harvest calendar that was mailed to Kuskokwim River households in mid May.

In-Season Subsistence Closures

Areas within the commercial salmon fishing districts were periodically closed to subsistence salmon fishing using net gear and fish wheels 16 hours before, during, and 6 hours after commercial salmon fishing periods. The purpose of these closures was to discourage illegal commercial fishing and to help discourage the sale of subsistence caught salmon in the commercial fishery. Many of the commercial fishers are local residents who also participate in the subsistence fishery. The specific waters closed to subsistence fishing varied district to district. During 2001, these closures began on August 2 prior to the season's first commercial coho salmon fishing period in the Kuskokwim River

SUBSISTENCE SALMON HARVEST SURVEYS

Data on the subsistence harvest of salmon are collected annually. The Commercial Fisheries Division began conducting subsistence salmon harvest surveys along the Kuskokwim River in 1960. Surveys were initiated in Quinhagak (1967) and Goodnews Bay and Platinum (1979). The Division of Subsistence took over the annual subsistence salmon harvest surveys in 1988 under a reimbursable service agreement and has been responsible for collecting and analyzing the data since then.

Methods

Three methods were used to gather subsistence salmon harvest data. These methods were:

1) subsistence salmon catch calendars,

2) post-season community household surveys,

3) postcard surveys.

The Division of Subsistence maintains a community household database and updates this database annually during the community surveys done after salmon fishing is completed each year. Each household in the database is designated as either "usually fish" or "does not usually fish" depending on past fishing history. Households listed in the database were the basis of sampling and estimation of subsistence salmon harvests for the Kuskokwim Area. Each household on the list was assigned a unique identifier through which subsequent information could be tracked.

The goals of the post-season survey were to:

1) collect harvest data that would result in an estimate of the total subsistence salmon harvest by species for the Kuskokwim Fisheries Management Area by community;

2) compile information on fishing effort, gear types, participation rates, and timing of the subsistence harvest;

3) update community household lists and identify fishing households;

4) determine if subsistence fishing success during 2001 was better than average, average, or poor and, if poor, why.

Catch Calendars

In May 2001, subsistence salmon catch calendars were mailed to all Kuskokwim Area households that had been identified as "usually fish." Three similar, but unique, catch calendars (Appendix S.1) were designed for recording the daily catch of each salmon species harvested for subsistence use. One style of calendar was sent to households in communities along the Lower and Middle regions of the Kuskokwim River, to communities along the Bering Sea coast and along North Kuskokwim Bay, and to those communities in the Upper Kuskokwim River region upstream as far as the community of Stony River. A second style of calendar was sent to the remaining households in the Upper Kuskokwim River region; and a third style was sent to households in Quinhagak, Goodnews Bay, and Platinum. Differences in the style of calendar sent to households take into account the species available, salmon run-timing, and timing of subsistence fishing activities. Where mailing addresses were available, the calendars were mailed to post office boxes; otherwise, calendars were sent general delivery for the post office clerk to distribute. Each calendar was

postage paid and addressed for return to the Division of Subsistence office in Bethel. Subsistence salmon catch calendars were distributed to 2,450 households.

Household Surveys

The second, and primary, method of collecting subsistence salmon harvest information was the post-season household surveys. With this method, staff traveled to communities in the Kuskokwim Area and went house-to-house interviewing residents about their 2001 salmon fishing efforts. Similar to the approach used in developing the catch calendars, three color-coded survey instruments were used to survey the majority of the communities (Appendix S.2). Except for local terms used for the salmon species, the survey questions asked in each region were identical. The survey form used when interviewing Bethel households also included a space for recording the households resident address and asked reasons why the household harvested salmon for subsistence using hook and line gear.

During 2001, the Division of Subsistence staff conducted house-to-house surveys in 28 communities. Budget constraints have precluded attempts to conduct house-to-house surveys in Mekoryuk, Newtok, Nightmute, Toksook Bay, Tununak, Chefornak, and Telida. House-to-house surveys were also not done in the communities of Kwigillingok, Kipnuk, and Kasigluk. These three communities have not consented to allow the house-to-house surveys to be done. Through funding administered through the US Fish and Wildlife Service Office of Subsistence Management, the Orutsararmuit Native Council (ONC) located in Bethel, hired two survey technicians to assist the department in gathering data by conducting house-to-house salmon surveys in Bethel.

Survey efforts occurred primarily over a two-month period, beginning in early October, after most residents had completed salmon fishing for the season and after most hunters had returned home from fall moose and caribou hunting. Communities in which residents usually harvest salmon through October were surveyed in November. Time spent in any one community ranged from one-half to two days depending on the size of the community. Surveys in Bethel were conducted over an 11-week period.

Households were interviewed systematically. Prior to beginning the community surveys, efforts were made to inform and prepare residents for the arrival of staff doing the surveys. This was done weeks or days in advance of their arrival through letters to city, tribal, or traditional council offices in each community, radio announcements, posters in public buildings and phone calls to community officials. Prior to traveling to each community, staff identified households that had already mailed in or returned their salmon harvest calendars.

In Bethel, survey staff used a map of the community originally developed by the Bethel Fire Department. This map identified the street addresses for most of the community and was used to divide the community into areas that could be assigned to each of the two survey staff. Each survey staff working in Bethel also had access to a list of all Bethel households identified through previous surveys and a list of households which had been sent and returned their salmon fishing calendar.

Upon arrival in a community, staff checked in with the city or council office to introduce themselves and outline their task. Staff used community household checklists, prepared in advance, to help them identify households they needed to contact while conducting household surveys. Each "checklist" contained a listing of all known households in the community, identified those households which were reported to have subsistence fished for salmon the previous year (2000), and households which were mailed 2001 catch calendars. Knowledgeable individuals in the community helped staff update the community household list and identify which households "usually fished" and which households "usually did not fish". These individuals also helped to identify households that subsistence fished for salmon in 2001.

Attempts were made to contact all households that were either identified as "usually fish" or were known to have fished during 2001. Structured interviews were conducted with these households through the use of the survey instrument. Subsistence salmon catch calendars that had not been mailed back to the department were also collected during the interview if available. If time permitted, other households on the community list were contacted about their salmon fishing activities.

Survey methods used in Bethel were initially designed the same as the two previous years; to contact every household (a census) so that a more accurate list of the total number of households in Bethel could be established. Unlike other communities, there was no entity that could provide a current list of households in Bethel. However, by the third week in October, the two technicians hired by ONC to conduct the surveys either quit or found other employment. Although replacement technicians were hired, the survey methodology in Bethel had to be redesigned because there was no longer enough time to survey all households. The methodology was redesigned so that the time remaining could be focused to contact households that were in the "usually fish" strata. In addition, if the survey crew knew of households in the community that fished for salmon but were not in the usually fish strata, they were encouraged to survey them. As a result, 795 Bethel households were surveyed in person. The total number of households surveyed throughout the entire Kuskokwim Area was 2,070.

Postcard Surveys

The third method of collecting information on subsistence harvest of salmon was by using postcard surveys (Appendix S.3). The postcard survey simply asked if the household harvested salmon from the Kuskokwim Area for subsistence use, the species and quantities harvested, the type of fishing gear used, and how fishing was for each of the four salmon species usually harvested. The postcard could be separated in half and returned postage paid to the department. This type of survey was the primary method of obtaining harvest data from households in Kipnuk, Kwigillingok, Kasigluk, Mekoryuk, Newtok, Nightmute, Toksook Bay, Tununak and households in other communities which were not available at the time of the community surveys.

In Bethel, postcard surveys were also left at the doors of several households that were occupied but where multiple attempts to contact the residents failed. As a final effort to contact households in Bethel, those individuals on the "usually fish" strata for which the department had a mailing address were also mailed a survey postcard. Overall, 300 postcards were distributed to Bethel

residents. Several postcards were returned with an address correction indicating that the individual had moved away. If the address correction included a current address, a follow-up postcard was then sent to determine if the individual harvested salmon in the Kuskokwim Area during 2001. Overall, approximately 1,600 households were mailed postcard surveys.

Subsistence Salmon Harvest Estimation

Data from the three information sources (catch calendars, household surveys, and postcard surveys) were entered into a computer database. Data were verified against source documents, and several logic checks of the data were made. The master list of names and addresses of resident households was updated to reflect changes in household composition and number of households residing in each community. The unique household numbering system was maintained on the master list and on the database tables containing information from each of the three information sources.

In order to provide a single best estimate for a household's harvest of a salmon species during 2001, information was compiled from the various information sources. This process was conducted by a single researcher on the project to ensure data consistency. In most cases, there were few discrepancies between the information available from the different sources. In those cases where a household was known to have fished for salmon but their harvest could not be quantified through any information source, the household's harvest was estimated based on the mean harvest in the "usually fishes" strata for that community. Likewise, if a household could not be contacted but was reported by a reliable source to not have fished, the household was assigned a harvest of zero.

Guidelines developed during the course of the process to composite harvest information included the assumptions that:

(1) the salmon catch calendar contained the best means of recording the household's harvest;

(2) information from the different sources needed to be evaluated concurrently in order to identify the harvest for each species;

(3) information from the different sources for a particular species may be different due to the timing of the collection of this information;

(4) information on the use of salmon to feed dogs be used as a minimum estimate of the household's harvest if no other information was available.

Salmon harvests identified as "removed from the commercial catch for subsistence use" were included in the household's subsistence harvest. The Bethel surveys did not include a question to specifically ask a household if they commercial fished for salmon during 2001. The Bethel survey form did, however, include a question format aimed at determining the amount of the subsistence harvest obtained from each gear type used, including those caught while commercial fishing. The

Bethel surveys also asked households the amount of non-salmon fish they had harvested during the preceding twelve-month period.

The average community catch (C_k) was estimated for salmon species from the composite catch per household data using the following formula:

$$C_k = \sum^{1}_{i=0} (N_{ki} * C_{ki}) / \sum^{1}_{i=0} N_{ki}$$

where
k = community
i = indicates whether the group "usually fishes" (1) or "usually does not fish"(0)
N_{ki} = number of households that "usually fish" or "usually do not fish"
C_{ki} = mean harvest for households that "usually fish" or "usually do not fish"

The total community catch (T_k) was estimated by $T_k = \sum^{1}_{i=0} (N_{ki} * C_{ki})$ and its variance (V_k) includes a finite population correction factor:

$$V_k = \sum^{1}_{i=0} ((N_{ki}^2)(1-(n_{ki}/ N_{ki}))(s_{ki}^2/ n_{ki}))$$

where n_{ki} = number of households for which information is available that "usually fish" or "usually do not fish" and s_{ki}^2 = variance for the amount harvested for the "usually fish" or "usually do not fish" households.

If fewer than 30 households, or less than 50% of all households in a stratum in a community were contacted, the reported harvest was used for the estimated harvest. Community catch estimates and their variances were summed across communities for region subtotals and across all regions for Kuskokwim Management Area totals.

2001 Sampling Summary

A summary of the sampling information by community and fishing area is presented in Table 13. Of the estimated 4,483 households located in the Kuskokwim Area, information was obtained for 2,520 (56%).

In total 1,985 households have been classified as "usually fish." In 2001, subsistence salmon harvest information was collected from 1,343 (68%) of these households. Households classified as "usually do not fish" for salmon totaled 2,498, however, this number included the majority of households (446) in the Bering Coast region, as well as 387 households in Kasigluk, Kipnuk and Kwigillingok where the household fishing status was not specifically known. Of the remaining 1,665 households identified as "usually do not fish," information was collected from 954. Many of the households classified as "usually do not fish" resided in Bethel.

Information on the fishing status (fished or didn't fish during 2001) was determined for 2,520 households. Of these, 1,570 households were identified as having harvested salmon during 2001.

Including households who were known to have not harvested salmon, harvest data was obtained for 2,297 households.

Within the Kuskokwim River drainage (including North Kuskokwim Bay communities), 2,060 (55%) of 3,708 households living in the region were surveyed. This region contains 83% of the total households in the Kuskokwim Area and 91% of the identified subsistence fishing households.

In the South Kuskokwim Bay region, containing the communities of Quinhagak, Goodnews Bay, and Platinum, information on salmon fishing was obtained for 165 (79%) of the 208 households. A total of 129 households harvested salmon in 2001 for subsistence use.

A total of 567 households have been estimated for the communities of Mekoryuk, Newtok, Nightmute, Toksook Bay, Tununak and Chefornak. A current and complete list of households was not available for these communities. Because house-to-house surveys were not conducted in these communities, data were obtained only by postcard surveys and calendar returns. Six households in this region provided information and indicated that they harvested salmon. Based on previous years data, actual participation in salmon harvesting activities by households in the Bering Sea coast area is thought to be much greater than that reported by catch calendars or postcard surveys alone.

For most communities, house-to-house surveys continue to be the most effective method for obtaining data on harvest and use of subsistence salmon. A total of 290 (12%) of the 2,450 subsistence salmon calendars, which were mailed pre-season, were used and returned or picked up during the household surveys. There were 95 responses to the 1,638 postcard surveys mailed to Kuskokwim Area households.

2001 Harvest Summary

The 2001 total subsistence salmon harvest estimates for the Kuskokwim Area was 77,570 chinook, 51,117 chum, 51,965 sockeye, and 31,686 coho salmon (Table 14). Seventy-eight percent of the overall subsistence salmon harvests in the Kuskokwim Area were taken by residents of communities located from Tuluksak downstream to Eek.

The harvest of chinook and chum salmon in the entire Kuskokwim Area increased in 2001 compared to the relatively poor harvests in 2000. However, when compared to the ten year period of 1990 through 1999, the chinook harvest in 2001 was 11% below average and the chum salmon harvest was 34% below average (Appendix A.10, A.13). The sockeye salmon harvest during 2001 was almost 26% greater than the 1990-1999 average (Appendix A.11). The coho salmon harvest was 17% below that same 10 year average (Appendix A.12).

Harvest trends described above were also true for the Kuskokwim River drainage, where most of the salmon harvested in the Kuskokwim Area are caught. Overall, subsistence salmon harvests were comparatively better in the lower Kuskokwim River area than in the middle and upper Kuskokwim drainage. Specifically, the harvest of chinook salmon in the lower Kuskokwim drainage (villages from Tuluksak to Eek and including Kipnuk, Kongiganak, and Kwigillingok) during 2001 was about 6% below the 1990-1999 average of 69,207. In the middle Kuskokwim

area (Lower Kalskag to Chuathbaluk) the 2001 chinook harvest was 32% below the 1990-1999 average of 9,357 for this same area. Further upriver in the upper Kuskokwim drainage from Crooked Creek to Nikolai, the 2001 chinook harvest was 47% below the ten-year average of 4,197. Although the 2001 harvest was better than the 2000 harvest, both were still down compared to the previous 10-year averages.

Chum salmon harvests during 2001 were similarly low when compared to the 1990-1999 averages for these areas. In the lower Kuskokwim area, the chum harvest was down by 7% and down 33% and 60% in the middle and upper Kuskokwim areas respectively.

The sockeye harvest during 2001 increased by 38% in the lower Kuskokwim River and by 17% in the middle Kuskokwim River compared to the 1990-1999 averages. Coho salmon harvests declined by 11% in the lower Kuskokwim river area and by 51% in the upper Kuskokwim compared to the same ten year period. In the middle Kuskokwim, however, the coho salmon harvest increased by 16%.

Relatively few salmon are harvested specifically for dogfood in the Kuskokwim Area. It is common for most households to feed scraps, backbones, entrails, and salmon that are unfit for human consumption to their dogs so that nothing is wasted. During 2001, 108 households reported harvesting salmon specifically to process and use for dogfood. The number of salmon reported harvested for dogs amounted to 5,179 chum, 1,631 sockeye and 1,839 coho salmon.

It is common for subsistence fishing households to use more than one type of gear (i.e. set gillnet, drift gillnet or rod and reel) when fishing for salmon. Households that harvested salmon were asked to provide information on the types of gear they used. The most common gear type used throughout the Kuskokwim Area is drift gillnet. During 2001, 898 households reported using drift gillnets when harvesting subsistence salmon. Drift net gear is used by the majority of fishing households from Sleetmute downriver including the coastal communities (Table 15). Set gillnets are also used throughout the Kuskokwim Area; however, they are used in a greater proportion in the upper Kuskokwim River communities of Lime Village, Stony River, McGrath and Nikolai as well as Platinum, located in south Kuskokwim Bay. Overall, 298 households reported using set gillnets when harvesting salmon. Rod and reel gear is also used for subsistence fishing in many communities throughout the area. Rod and reel gear is used by residents that may not have access to other gear types, is used by fishers in areas where other gear types are not as effective or efficient, and is used to harvest relatively few fish when less is needed. Chinook and coho salmon are the two salmon species most frequently harvested by rod and reel gear. Rod and reel gear is also the primary gear type used by Nikolai residents for harvesting subsistence chinook salmon. During 2001, 218 households in 23 communities reported using rod and reel gear to harvest salmon for subsistence use.

Fishwheels are also used in the middle and upper Kuskokwim areas for harvesting salmon. This gear type is most frequently used by fishers in Aniak, Stony River, Lime Village and McGrath. Fishwheels in the Kuskokwim River are used primarily for harvesting sockeye, chum and coho salmon. Although none of the households contacted through personal surveys or postcard surveys during 2001 reported using fishwheels, one or two fishwheels were used near Aniak and another wheel was used near McGrath during 2001 by households that could not be contacted.

During 2001, no households reported using spears for harvesting salmon. One household in Goodnews Bay reported using a seine to subsistence fish for salmon.

Households that used gillnets for harvesting chinook salmon were also asked to report the mesh size of gillnet used; 486 households provided information in response to that question. Sixty-one percent of households responding reported using gillnets that had mesh size larger than 6-inch for harvesting chinook salmon while 39% reported using 6-inch or smaller. Nearly 20% reported using nets with mesh size greater than 8-inch. Specifically, 6-inch, 8-inch and 8.25 were the most common sizes mesh reported for harvesting chinook salmon.

Households that are involved in commercial salmon fishing sometimes keep some salmon caught through their commercial fishing activities to bring home for subsistence use. During 2001, there were no commercial salmon fishing periods in the Kuskokwim River drainage until early August. There were, however, commercial fishing periods in Districts 4 and District 5 during June and July as well as August. Forty-five households reported retaining salmon for subsistence use from commercial fishing activities during 2001 (Table 16). The amount of salmon reportedly kept from commercial fishing amounted to 81 chinook, 70 chum, 65 sockeye and 227 coho salmon. The number of salmon retained from commercial fishing activities for subsistence use is usually relatively low.

Fishing households were asked to respond to a qualitative question about their subsistence salmon fishing for the season. The purpose of this question was to learn how households viewed their 2001 subsistence fishing success. Households were asked to rate their subsistence fishing success for each of the four species surveyed (chinook, sockeye, chum, coho) as "Very Good," "Average," or "Poor". A total of 957 households provided responses to this survey question (Table 17).

Overall, 76% of households reported their subsistence chinook fishing success as very good or average. Fishers in the middle and lower Kuskokwim River area had better success that residents in the upper Kuskokwim region. Fifty percent of the responses by households located in the upper Kuskokwim region (Crooked Creek to Nikolai) indicated that subsistence fishing for chinook salmon was poor. Based on the survey responses, chinook salmon fishing was rated particularly poor in the communities of Crooked Creek, Lime Village and McGrath. In contrast, the majority of residents in Sleetmute and Nikolai rated chinook fishing as average or better.

Of the responses that chinook salmon fishing was poor during 2001, 200 households provided reasons why it was poor. Of those 200 reasons, 37% indicated that fishing was poor because there were few fish to be caught or that the chinook run was poor. Twenty-one percent reported that their chinook fishing was poor because of the schedule. Nine percent indicated environmental factors as the reasons (high water, river conditions etc). Five percent indicated that equipment problems or wage employment were the primary factors. Ten percent indicated that there were other personal reasons why fishing was poor, and 18% had other reasons or no comment as to why they rated their chinook fishing was poor.

A total of 143 households provided reasons why they reported their chum salmon fishing as poor during 2001. Forty-eight percent of those responses stated that low numbers of chum salmon were the reason why. Thirteen percent reported the subsistence fishing schedule as the primary reason

why their chum salmon fishing was poor, and 16% had no specific reason why they rated their fishing as poor.

Thirty six percent of the 77 households that provided reasons why sockeye salmon fishing was poor and 44% of the 50 households that reported coho fishing as poor indicated poor salmon returns as the reason. Seventeen percent indicated the fishing schedule as the reason for rating the quality of their sockeye salmon fishing as poor.

COMMERCIAL FISHERY

The Kuskokwim Area commercial salmon fishery dates back to the late 1800s. In the early years of the fishery, most of the commercial catch was sold locally for dog food (Oswalt 1990, Brown 1983). Salmon have been harvested in the Kuskokwim Area for export since 1913 (Pennoyer 1965). The current system of fishing districts, formerly called subdistricts, began in 1960 for the Kuskokwim River and District 4 (Appendix A.2). District 5 was established in 1968. The Kuskokwim River chum salmon fishery began in 1971 with gillnet mesh size restricted to 6 inches or smaller after 25 June. In Districts 4 and 5, gillnet mesh size has been restricted to 6 inches or smaller since formal inception of the districts. In 1985, the 6-inch maximum gillnet mesh size was applied to all Kuskokwim Area commercial salmon fisheries. The directed chinook salmon fishery in the Kuskokwim River was discontinued in 1987 (Appendix A.2).

Prior to 1983, a management strategy of conservatively increasing the commercial harvest guidelines to establish definite trends between catch and escapement allowed development of the fishery. Since changing from a harvest-guideline-based management strategy to an escapement-objective-based strategy in 1983, average harvests have generally increased (Appendix A.4). However, relatively low chinook salmon runs to Goodnews Bay and weak returns of Kuskokwim River chum and coho salmon in 1997, 1998, 1999 and 2001 may require special management measures in the 2002 through 2004 return years to meet escapements.

Coho salmon are the most important species in the commercial fishery in terms of both harvest numbers and value to the fishers. The commercial fisheries in all four districts target coho in late July and August. Chum salmon are usually second in importance being the target species in the Kuskokwim River fisheries in June and July. In most years, sockeye salmon are the third most commercially important species with directed fisheries in Districts 4 and 5. Chinook catch and value ranks fourth with the only directed commercial fishery on this species occurring in District 4. Pink salmon are the least numerous and least valuable species in the commercial fishery.

Public Communications

Communicating management plans and decisions to the public is often challenging because many people in the Kuskokwim Area speak English as a second language or only Yupik. Special regulation notices are broadcast over local radio stations, VHF and CB radio in English and Yupik. The department and the Kuskokwim River Salmon Management Working Group

(Working Group) relationship has dramatically improved the acceptance and understanding of fisheries management by many users. The department participates in school and workshop programs in the winter. News releases are now more widely distributed through a computerized FAX and e-mail system.

Commercial Fishery Data

Catch per unit of effort (CPUE) is used in this report to describe the relative success of fishing and as an index of abundance. Commercial CPUE is the number of fish caught during a fishing period divided by the product of the number of unique CFEC permits used in a fishing period and the total number of hours the district was open to commercial fishing.

Computer tabulations of fish tickets provide the commercial catch data presented in this report. The computer software program is a statewide system provided by the Commercial Fisheries Division Computer Services section.

The commercial fishery expanded through the early 1990s (Appendix A.5). This expansion was due to increased participation by individual fishers; a shift to escapement based management; and improvements in fishing gear, tendering, and processing capabilities. In 1995, a record 829 of the 840 permit holders made at least one landing (Appendix A.6). Since 1995, the number of participating permit holders has decreased considerably due primarily to a significant drop in the prices paid for salmon.

Appendix A.5 shows that permit-hours peaked in 1975, which was probably due to the impending limited entry permit moratorium. Since that time, maintaining adequate subsistence harvests and spawning escapements have required reductions in fishing time. Fishing efficiency has increased, as the increase in harvest (Appendix A.4) and the decrease in permit-hours (Appendix A.5) shows. Improved run strength, escapement based management, and increased participation resulted in permit-hours stabilizing to around 100,000 from 1987 to 1995 (Appendix A.5). In 2001, permit-hours were 72% below the most recent 10-year (1991-2000) average in Districts 1 and 2 because of limited fishing time due to the very weak chum salmon run and lower participation caused by low prices. The number of permit hours for the Kuskokwim Area was the lowest since 1966. Permit-hours were 61% below average in District 5 and 74% below average in District 4 primarily due to low prices and a poor coho run.

Commercial fishing regulations set maximum gillnet specifications of 6-inch or smaller mesh, 50 fathoms in length and 45 meshes in depth for all districts (ADF&G 1985). Fishing periods in Districts 1 and 2 are usually six hours in duration from 1:00 p.m. until 7:00 p.m., as required by the management plan. Longer fishing periods generally divide the extra time before 1:00 p.m. and after 7:00 p.m. In Districts 4 and 5, fishing periods are normally 12 hours in length. Fishers in those two districts prefer daylight fishing hours so the periods are normally 9:00 a.m. until 9:00 p.m.

Adjustments of the number and duration of commercial fishing periods and time intervals between periods are the primary methods of distributing the harvest throughout the run. This helps to avoid over harvesting discrete stocks, achieve biological escapement goals (BEG), and

allows sufficient fishing time for the subsistence fishery. In 2001, commercial fishing periods varied between 4 and 12 hours in length depending on the district, species, effort, run magnitude, and processing capacity. Run magnitude is assessed by commercial and subsistence catch data and by various department, non-profit organization, United States Fish and Wildlife Service (USFWS) and industry sponsored projects.

At their March 2000 meeting, the Alaska Board of Fisheries adopted an Agenda Change Request submitted by the fish processor, Arctic Salmon, to establish a District Registration and Reregistration system for District 1. This new regulation divides District 1 into two subdistricts; Subdistrict 1B, downstream of Bethel and Subdistrict 1A, upstream of Bethel. The primary purpose of this regulation was to reduce the magnitude of the commercial harvest during a single fishing period in District 1 when processing capacity was inadequate to handle the harvest from a full-district opening. If processing capacity is limited, only one subdistrict will open to commercial fishing at a time. Fishers must choose which subdistrict they will fish in and cannot fish in the other subdistrict without first contacting the Alaska Department of Fish and Game.

Permit holders are automatically registered to fish in the subdistrict where they make their first delivery of the season. After contacting the department and declaring their intent to transfer to the other subdistrict, they cannot fish commercially for 48 hours. The number of transfers between subdistricts of District 1 was limited to one in June and July and one in August. This regulation did not limit the ability of permit holders to transfer freely between District 1 and Districts 4 and 5.

Another new regulation was adopted and another regulation was modified to implement the district registration regulation. The regulation describing the boundaries of District 1 (5 AAC 07.200. FISHING DISTRICTS) was modified. District 1, Lower Kuskokwim River, was divided into two registration areas, 1B (below Bethel) and 1A (above Bethel). The new regulation adopted by the Board (5 AAC 07.340. VESSEL IDENTIFICATION) required permit holders to identify their fishing vessel by permanently marking their ADFG vessel license or CFEC entry permit number on both sides of the vessel.

Kuskokwim Area fishers owned 96.5% of the 797 commercial permits renewed in 2001 while non-local Alaskan residents owned 3% (23). Non-residents owned 5 permits (Table 2).

SPORT FISHERY

In 2000, Sport Fisheries Division established Lower Yukon /Lower Kuskokwim Management Area (LY/LKMA) and stationed an Area Management Biologist in Bethel. This position manages sport fisheries from Cape Newenham to Point Romanof, including the lower portion of the Yukon River downstream of Paimiut Slough, and the lower portion of the Kuskokwim River downstream of the Aniak River, including the Aniak River. Sport fisheries of the remainder of the Kuskokwim River drainage are managed from the Fairbanks Office. Sport fishing effort within the Kuskokwim drainage rarely exceeded 10,000 angler days of effort (Lafferty 2001 and Burr 2001). The majority of sport fishing effort and harvest occurs within the Kuskokwim Bay streams, particularly the Kanektok and Goodnews rivers. Sport harvests of chinook and coho

salmon average 750 chinook and 1,500 coho salmon in the Kuskokwim drainage (Lafferty 2001 and Burr 2001). However, the small sport harvests remain a concern with area residents and often are a discussion topic at public meetings. Specific details of the sport fisheries of the area are found in the area management reports of Lafferty, *in press* and Burr, *in press*.

ESCAPEMENT MONITORING AND ASSESSING RUN ABUNDANCE

The vast size, remoteness, and geomorphic diversity of the Kuskokwim Area present tremendous challenges to monitoring salmon escapements and assessing salmon run abundance. Aerial spawning ground surveys have been the most cost-effective means of monitoring salmon escapements, but their usefulness and reliability are limited. The more thorough and rigorous ground based projects such as weirs, counting towers, and sonar have been operated in only a few locations because of costs and limited budgets. Over the past few years, however, the number of escapement projects in the Kuskokwim Area has increased through cooperative partnerships with federal agencies and local organizations (Table 1). These cooperative efforts have added substantially to our ability to monitor salmon escapements and to evaluate the effectiveness of inseason management actions.

Aerial Surveys

Many of the escapement goals established for Kuskokwim Area streams in 1983 were based on aerial survey counts (Appendix A.3, Buklis 1993). Several of these aerial survey goals were formally discontinued prior to the 2001 salmon season (Burkey et al. 2000a and Burkey et al. 2000b). The aerial survey based escapement goals of the Kuskokwim Area do not represent the entire spawning populations in the respective streams. The surveys are mostly conducted one time each season during a window of a few days when the maximum number of fish are expected to be on the spawning grounds. The escapement goals developed from these surveys are based on the raw, unexpanded counts; therefore, each count serves as an index of abundance rather than a complete census.

Aerial surveys are ordinarily restricted to clear water streams and lakes, the distribution of which is geographically skewed towards the lower Kuskokwim River basin and coastal streams. Tributaries in the middle and upper Kuskokwim River are oftentimes stained from organics or clouded by glacier runoff, both of which markedly reduce the visibility of fish. Escapement assessment through aerial surveys is also subject to a high degree of variability depending on viewing conditions and the persons doing the surveys.

Aerial surveys are best directed at indexing spawning populations of sockeye and chinook salmon because these fish are typically more visible than chum and coho salmon. In addition, chum salmon have protracted run timing, and coho salmon are frequently difficult to survey because of weather conditions.

Ground Based Escapement Assessment

Weir, sonar, mark-recapture, and radio telemetry projects operated in the Kuskokwim Area allow estimation of entire spawning populations or major segments of those populations. Eleven such projects were operated in the Kuskokwim Area in 2001 (Figure 1). Three of the projects--Aniak River sonar, Kogrukluk River weir, and Middle Fork Goodnews River weir--have escapement goals associated with them (Appendix A.3). Other information collected at ground based projects may include salmon sex and length composition, scales for age determination, statistics on the occurrence of gillnet marks on fish, samples for genetic stock identification, data on resident species, and information from the recovery of tagged fish in coordination with the mark-recapture and radio telemetry projects.

Kuskokwim River

Kogrukluk River Weir

The Kogrukluk River is a middle Kuskokwim River tributary located in the upper reaches of the Holitna River drainage (Figure 1). The department has operated a weir on the Kogrukluk River since 1976 to monitor passage of chinook, sockeye, chum and coho salmon (Cappiello 1998a). The escapement goal for chinook, chum, and coho salmon is 10,000, 30,000 and 25,000 fish, respectively. Sockeye are considered incidental at the site, but annual sockeye passage sometimes exceeds the abundance of other species (Appendix A.7). Operations in 2001 were incomplete due to high water level in the Kogrukluk River; however, operations were sufficient to allow for estimating the missed portions of the chinook, chum, and sockeye salmon escapements.

A counting tower operated on the Kogrukluk River from 1969 through 1976 was the earliest ground based escapement monitoring project in the Kuskokwim Area (Yanagawa 1972a, and 1973, Kuhlmann 1973, 1974, 1975; Baxter 1976 and 1977). The department first tried to weir the river in 1971, but was unsuccessful (Yanagawa 1972b). Both the tower and the 1971 weir site were located several miles upstream of the current weir project. The early projects were also upstream of Shotgun Creek, a productive salmon spawning area. The current weir site is downstream of Shotgun Creek.

Travel time for chum and coho salmon from the upper end of District 1 to the weir is estimated at about 25 days based on tagging studies conducted in the early 1960s (ADF&G 1961a and 1962a). Inseason escapement projection models have been developed to estimate the end-of-season escapements (Cappiello 1998), but their usefulness is generally limited because of variability in salmon entry patterns.

Aniak River Sonar

The Aniak River is located in the lower Kuskokwim River basin and is believed to be one of the largest producers of chum salmon in the Kuskokwim Area (Figure 1). Non-configurable sonar equipment was used from 1980 through 1995. A transducer was deployed from one bank and passage in the unensonified section of the river was estimated using an expansion factor (Schneiderhan 1989). Results from the 1995 operations were considered unusable because of abnormalities in the operation that could not be resolved (Burkey et al. 1996b). The problem was associated in part to limited crew experience, but also at fault was the lack of documentation

inherent with non-user configurable sonar. In 1996 the project was redesigned to take advantage of user-configurable sonar technology (Vania 1998). At the same time the project was relocated about a mile downstream where a transducer was deployed from each bank to allow full channel ensonification. Since 1996, the Association of Village Council Presidents has provided a technician to assist in field operations of the user configurable sonar. The sonar project began on July 11 in 2001, approximately 16 days past the targeted start date (Appendix A.7).

The sonar passage estimates for the Aniak River include a mix of species, however the operating period typically focuses on a time span from late June through late July when the majority of the fish passage is believed to be chum salmon. This assumption has generally been confirmed through periodic gillnetting activities (Schneiderhan 1989, Vania 1998). During the first few years of operation, fish passage was apportioned to chum and chinook salmon using the proportion of each species caught in gillnets (Schneiderhan 1981, 1982a, 1982b, 1984c). Species apportionment was discontinued after 1986 because of inadequate sample sizes, gillnet selectivity problems, and the perceived dominance of chum salmon (Schneiderhan 1989).

The escapement goal for Aniak River sonar is 250,000 fish counts (Buklis 1993). Area biologists derived the goal subjectively in the early 1980s by relating the sonar passage estimates to trends in harvest and other escapement indices (Schneiderhan 1984c). In the years that followed, periodic consideration of the escapement goal provided no compelling reason to change the goal. The escapement goal of 250,000 fish has been carried forward to the redesigned sonar project, but it will be reassessed as more information is gathered.

The travel time for chum salmon from the upper end of District 1 to the Aniak River sonar site is estimated at about 7 or 8 days based on tagging studies (ADF&G 1961a and 1962a).

Other Kuskokwim River Escapement Projects

In the past few years additional escapement projects have been operated through cooperative efforts with FWS and other organizations. Cooperative escapement projects were operated in 2001 on the Takotna, George, Tatlawiksuk, Kwethluk, and Tuluksak Rivers through partnerships with the Takotna Tribal Council, Kuskokwim Native Association, Organized Village of Kwethluk, Tuluksak Traditional Council, and the U.S. Fish and Wildlife Service (FWS) (Figure 1). These groups received federal funding through grants obtained by the Bering Sea Fishermen's Association (BSFA), Bureau of Indian Affairs (BIA), the Federal Office of Subsistence Management (OSM), and the National Marine Fisheries Service (NMFS). The department and FWS worked jointly to provide varying levels of support to each project, including an on-site crew leader or crewmember.

The first of these cooperative escapement projects was established on the Takotna River in 1995 when the Iditarod Area School District, in consultation with ADF&G, began a salmon counting tower that was operated with mixed success (Molyneaux et al. 2000). The tower project was replaced by a resistance board weir in 2000. In 2000 and 2001 the weir was successfully operated to enumerate chinook, chum, and coho salmon (Appendix A.7). The weir project has been developed and operated through funding from BIA and NMFS (Schwanke and Molyneaux 2002).

Operations at the George River weir began in 1996 through the collaboration of the Kuskokwim Native Association and ADF&G with funding provided by BIA, BSFA, and NMFS (Molyneaux et al. 1997b). The initial fixed panel weir design was replaced with a resistance board weir in 1999. The project is used to monitor escapements of chinook, chum and coho salmon and operated successfully in 2001 (Appendix A.7).

Following their success on the George River, the Kuskokwim Native Association and ADF&G began the Tatlawiksuk River weir in 1998. Again, the initial fixed panel weir design was replaced with a resistance board weir in 1999; and the project is used to monitor escapements of chinook, chum and coho salmon. The project was operated successfully in 2001 (Appendix A.7). Most of the start-up and operational cost in the first year was provided by grants from National Fish and Wildlife Foundation (NFWF) and NMFS with additional support from BSFA. In 2000 and 2001, OSM also contributed to the operational costs.

Salmon assessment on the Kwethluk River has had a more convoluted history. FWS operated a resistance board weir on the river in 1992, but discontinued the project after the first season because of concerns from Kwethluk community members (Harper 1998). From 1996 to 1999, the Association of Village Council Presidents worked with Kwethluk Traditional Council and ADF&G to operate a salmon counting tower on the river through funding from BSFA and NMFS, but success was limited and the project was discontinued (Cappiello and Sundown 1998, Chris and Cappiello 1999, and Hooper 2001). FWS joined with Kwethluk Traditional Council and ADF&G in 2000 to reinstate the resistance board weir downstream of the original site. The weir was successfully used to enumerate chinook, chum, sockeye, pink, and coho salmon in 2000; but in 2001 high water delayed installation until August 12 rendering operations for the season incomplete (Appendix A.7). Funding for the weir has been from BSFA, OSM, and NMFS.

A resistance board weir was operated on the Tuluksak River from 1991-1994 by FWS (Harper 1995a, 1995b, 1995c, 1997). The project was discontinued for several years largely because of the lack of local support, but was re-initiated as a resistance board weir in 2001 to monitor chinook, chum, and coho salmon. The chinook salmon escapement for 2001 is considered incomplete due to the delayed start of the 2001 operations (Appendix A.7).

Two new projects were initiated in 2001 to assess escapements. First, a mark-recapture experiment was begun on the main stem Kuskokwim River to estimate the total passage of adult coho salmon past Kalskag (Kerkvliet and Hamazaki 2002). The mark-recapture project is funded through a grant from NMFS and was operated in partnership with Kuskokwim Native Association. The second project was a radio telemetry experiment intended to estimate the escapement of chinook, chum and coho salmon in the Holitna River drainage (Wuttig and Evenson 2002). The radio telemetry project was funded through a grant from OSM and was also operated in cooperation with Kuskokwim Native Association.

Other escapement monitoring projects operated in the Kuskokwim River basin over the years include: South Fork Salmon River weir in 1981 and 1982 (Schneiderhan 1982b, 1982d) and experimental sonar deployment in the Kwethluk and Kasigluk Rivers in 1978 and 1979 (Schneiderhan 1979,1980). These projects were discontinued because of funding shortages, technical limitations, and /or lack of local support.

District W-4

Kanektok River Weir

Establishing a viable method for assessing salmon escapement in the Kanektok River has been problematic since the inception of the District W-4 commercial fishery in 1960. In 1960, a counting tower was established on the lower river near the village of Quinhagak (ADF&G 1960). The project was plagued by logistical problems, poor visibility into the water column, and difficulties with species apportionment (ADF&G 1960). In 1961, the tower was relocated to the outlet of Kagati Lake and operated through 1962 (ADF&G 1961, 1962). Although successful in providing sockeye salmon escapement information, it was abandoned after 1962 (ADF&G 1962). Hydroacoustic sonar was attempted from 1982 through 1987 but was unsuccessful because of budget constraints, technical obstacles, and site limitations (Schultz and Williams 1984, Huttunen 1984c, 1985c, 1986a, 1988). In 1996, a cooperative effort between the Native Village of Kwinhagak (NVK), FWS, and ADF&G, and OSM revisited the counting tower, again meeting with limited success (Fox 1997) despite improvements to the project in 1998 (Menard and Caole 1998). In 1999, resources were redirected towards developing a resistance board-floating weir (Burkey et al 2001). The weir was briefly operational in 2000, but technical limitations, personnel problems, and high water levels prevented the project from meeting its objectives (Linderman 2000). During its brief period of operation in 2000, the weir caused extensive bank erosion, and it was determined the site was incapable of facilitating a weir (Linderman 2000). In 2001, the weir was relocated approximately 20 miles upriver from the original site. The weir was successfully installed and operated although installation was delayed until August 10. While in operation, the weir withstood two high water discharge events that warranted concern for the stability of the weir. In both instances the weir showed no signs of becoming dislodged or breaking apart. In addition, there were no obvious signs of unusual or increased erosion along the banks, nor any unusual or increased scouring along or behind the substrate rail. Attempts will be made in 2002 to install the weir in early May, prior to the high water discharge associated with spring precipitation and snow melt. The project continues to operate as a cooperative project between ADF&G, OSM, BSFA, NVK, and FWS.

Salmon escapement information for the Kanektok River is limited because of the lack of success in establishing a viable method for assessing escapement (Appendix A.7). Currently, run strength is assessed by comparing inseason commercial catch and catch rates with historical averages. Aerial surveys are used to estimate salmon abundances. While useful in observing abundance trends, aerial surveys do not give total escapement numbers. Aerial survey escapement goals were established in 1993 and set at 5,800, 15,000, 30,500, and 25,000 fish for chinook, sockeye, chum, and coho salmon, respectively (Buklis 1993). Aerial surveys for chinook, sockeye, and chum salmon in the Kanektok River have been consistent since 1981 (Appendix C.1). Chinook and sockeye salmon have met their escapement objectives consistently since 1993. Chum salmon have not met their escapement objective since establishment of the objective in 1993. Aerial surveys for coho salmon have been sporadic since 1981.

The Kanektok River weir was operational from August 9 through October 3 in 2001, allowing the nearly complete enumeration of the coho salmon escapement past the weir site. Installation of the weir was delayed by nearly a month and a half, precluding the project from achieving its objective of enumerating the chinook, sockeye, and chum salmon escapements. Total fish

passage through the weir from August 9 until October 3 was 132 chinook, 739 sockeye, 1,056 chum, and 35,650 coho salmon, and 2,556 Dolly Varden (Appendix C.2, Estensen 2001a). High water level rendered the weir inoperable on September 6, and interpolation was used to estimate coho salmon passage. From September 7 through September 12, small sections of the weir remained submerged, resulting in partial counts for these days. Interpolation was not used to estimate passage on these days as crewmembers did not observe any fish passing the weir at the breached areas, and daily passage counts did not appear unusually low.

During an aerial survey of the Kanektok River on August 4, 6,483 chinook, 38,610 sockeye, and 11,440 chum salmon were observed (Appendix C.1, Estensen 2001a). The chinook and sockeye salmon counts exceeded their aerial survey escapement goals, while chum salmon did not. No aerial survey was flown for coho salmon.

District W-5

Middle Fork Goodnews River Weir

The Middle Fork Goodnews River (MFGR) project is the third oldest salmon escapement assessment project in the Kuskokwim Area. The project was initiated as a counting tower in 1981 and was operated through 1990 (Schultz 1982, 1984a, 1984b, 1985, 1987; Schultz and Burkey 1989; Burkey 1989, 1990). Although successful, the tower was limited by problems with species apportionment and high labor costs (Menard 1999). In 1991, resources were redirected towards a fixed-panel weir that operated through mid-season of 1997. The fixed-panel weir greatly reduced labor costs and improved species apportionment. It was, however, limited by frequent high water levels that often exceeded the height of the panels, rendering the weir inoperable. In some years, during high water, the weir required dismantling to prevent its dislodgment.

In July 1997, the fixed-panel weir was replaced with a resistance-board floating weir designed to withstand high water levels (Menard 1998). Since then, the resistance-board weir has allowed the project to remain operational during high water events, and to operate into September, traditionally a period of high water level. In 1997, a cooperative effort between ADF&G, FWS, BSFA, and OSM extended the operation of the weir through September to enumerate the coho salmon escapement. The project continues to operate as a cooperative project between ADF&G and FWS.

Salmon escapement objectives for the MFGR were established in 1983 as ranges at the MFGR counting tower (Schultz 1984b). These ranges were set at 3,000 to 4,000 chinook, 35,000 to 45,000 sockeye, and 13,000 to 18,000 chum salmon (Schultz, 1984b). No escapement objectives existed for coho salmon as the project normally ceased operation in mid-August. In 1989, the sockeye salmon escapement objective range was lowered to 20,000 to 30,000 fish. An evaluation of the sockeye salmon exploitation rate in previous years indicated that historical harvest levels could be maintained with a reduced escapement objective (Burkey, 1990). These ranges remained in place when the tower was replaced with a weir in 1991.

In 1993, Biological Escapement Goals (BEGs) for chinook, sockeye, and chum salmon were established for the MFGR weir (Buklis 1993). These BEGs were set as the midpoints of the

MFGR tower escapement objective ranges: 3,500, 25,000, and 15,000 for chinook, sockeye, and chum salmon, respectively. No BEG has been established for coho salmon at the MFGR weir because insufficient historical escapement and run timing data exists. Beginning in 1997, operation of the MFGR weir was extended into September to enumerate coho salmon escapement. The project continues to add coho salmon data to the long term data base, which should lead to the establishment of a BEG for the MFGR weir.

Chinook salmon runs have reached their escapement goal at the MFGR weir only 4 times since 1991 (Appendix D.1). In response, starting in 1997, the department has delayed opening the District W-5 commercial salmon fishery until the last week in June in an attempt to increase chinook salmon escapement into the drainage. Sockeye and chum salmon runs have reached escapement goals in most years since 1990 (Appendix D.1).

Aerial surveys have been used to assess salmon abundance in the Goodnews River drainage since 1980. Aerial surveys for chinook, sockeye, and chum salmon were flown consistently from 1980 until 1989. Since then, surveys have been flown sporadically (i.e. only four aerial surveys have been flown over the MFGR for chinook salmon since 1990); (Appendix D.1). Aerial escapement objectives for chinook, sockeye, chum, and coho salmon were established in 1993 for the Goodnews River and Lake, and the Middle Fork Goodnews River and Lakes (Buklis 1993). Aerial survey escapement objectives for the Goodnews River and Lake are set at 1,600 chinook, 15,000 sockeye, 17,000 chum, and 15,000 coho (Buklis 1993). Aerial survey escapement objectives for Middle Fork Goodnews River and Lakes are set at 800 chinook, 5,000 sockeye, 4,000 chum, and 2,000 coho salmon (Buklis 1993). Aerial survey data for all species has been sporadic since 1991, making it difficult to base any conclusions on abundance trends from survey results (Appendix D.2).

In 2001, escapement at the MFGR weir was 5,351 chinook, 22,024 sockeye, 19,626 coho, 26,829 chum, and 1,328 pink salmon (Appendix D.1, Estensen 2002b). Chinook salmon escapement exceeded the 3,500 fish goal by 35%, chum salmon escapement exceeded the 15,000 fish goal by 45%, but sockeye salmon escapement was 10% below the goal of 25,000 fish. Based on historic run timing data, 1% of the chinook and 7% of the sockeye salmon runs were estimated to have passed the weir before operation began.

Chinook, sockeye, and chum salmon escapements in the Goodnews River are estimated by expanding aerial survey counts from the Goodnews River by the MFGR weir index. The MFGR weir index is the ratio of the number of fish observed during the aerial survey of the MFGR to the cumulative number of fish having passed the MFGR weir on that date. The resulting Goodnews River estimate is then adjusted to account for the estimated percentage of the run that reached the spawning ground after the survey was flown. The percentage used was the portion of the respective runs that passed the MFGR weir after the survey was flown. Aerial survey counts in 2001 for the Goodnews River were 3,561 chinook, 29,340 sockeye, and 7,330 chum salmon (Appendix D.2, Estensen 2002b). The MFGR index was 46%, 22%, and 24%, chinook, sockeye, and chum salmon respectively. Expanding the Goodnews River aerial surveys counts by the MFGR index gives escapement estimates of 7,741 chinook, 133,364 sockeye, and 30,542 chum salmon. Adding the percentage of the run having reached the spawning grounds after the survey was flown (5%, 3%, and 11% for chinook, sockeye, and chum salmon, respectively), gives

estimated Goodnews River escapements of 8,128 chinook, 137,364 sockeye, and 33,902 chum salmon. Drainage wide escapement estimates were 13,532 chinook, 159,859 sockeye, and 60,731 chum salmon (Appendix D.1, Estensen 2002b).

Salmon Run Strength Assessment

Salmon managers require timely inseason assessment of salmon run abundance. In the Kuskokwim River, escapement projects provide limited usefulness in this regard because of the great distances between the areas of harvest and the project locations. Consequently, managers rely on test fisheries, commercial catch statistics, and informal reports from subsistence and sport fishers to augment escapement data.

In the Kuskokwim Bay the escapement monitoring projects are much closer to the commercial fishing districts, so escapement data can be effectively used for inseason management. Kuskokwim Bay managers also make use of commercial catch statistics and information from subsistence and sport fishers. Catch statistics are especially important in District 4 where reliable escapement monitoring has been historically lacking.

Bethel Test Fishery

Daily inseason assessment of Kuskokwim River relative salmon run strength and timing is available from a drift gillnet test fishery operated near Bethel. The Bethel test fishery is located at river mile 80 of the Kuskokwim River, which is about the midpoint of District 1 (Figure 2). The project began in 1984 and the methodology has remained largely unchanged (Molyneaux 1999). From early June through late August the test fish crew conducts three or four systematic gillnet drifts beginning one hour after high tide. The drifts are done at three stations distributed across the width of the channel. Each drift is 20 minutes in duration. Two 50 fathom gillnets are used, one net is hung with 5-3/8-inch mesh web and the other with 8-inch mesh. The two gillnets are rotated between the three stations following a systematic schedule. Both mesh sizes are operated from early June through about 10 July when chinook, sockeye and chum salmon all occur in relatively good abundance. The 8-inch mesh is discontinued after about 10 July when chinook abundance diminishes. Test fishing with the 5-3/8-inch mesh continues until late August.

The test fish catch from each tide is tallied by species then sold to a local fish buyer or distributed to charities. Catch statistics for chinook, sockeye, chum and coho salmon are presented as daily catch-per-unit-effort data. Comparisons are made with test fish results from previous years to assess relative abundance and run timing. The comparisons are subjective in that managers need to consider variables such as water level, fishing patterns, and changing river morphology when comparing data from between years, and even within years.

Historically, other test fisheries have been attempted in the Kuskokwim River: Kwegooyuk test fishery, 1966 - 1983 (Baxter 1970, Huttunen 1984b); Eek test fishery, 1988 - 1994 (unpublished); Kuskokwim River subsistence test fishery, 1988 - 1990 (Kuskokwim Fishermen's Cooperative, 1991); Aniak test fishery, 1992 - 1995 (unpublished); Chuathbaluk test fishery, 1992 - 1993 (unpublished); and the Lower Kuskokwim River test fishery, 1995 (unpublished). Most of these

projects were initiated at the prompting of groups other than ADF&G. They were all eventually discontinued for a variety of reasons including lack of funding, consistency problems, difficulties with catch disposition, and ambiguous results.

Commercial Catch Statistics

Comparison of commercial catch statistics is another common method for assessing run strength. However, the usefulness of this approach can be confounded by inconsistencies in the number of participating fishers, the duration of commercial fishing periods, river levels, and other variables that might influence catch or the effort applied by fishers.

Subsistence and Sport Fish Information

Throughout each season ADF&G staff members keep in close communication with subsistence and sport fishers to assess their fishing success and the degree to which their needs are being met. These catch reports sometimes play a pivotal role in management decisions. In 2000, the Orutsararmuit Native Council also began conducting inseason surveys of subsistence fishers and reporting the information to ADF&G and the Kuskokwim River Salmon Management Working Group through a grant from OSM.

Kuskokwim River Sonar

The department began developing a user-configurable sonar project in 1988 for deployment in the mainstem of the Kuskokwim River near Bethel (Mesiar et al. 1994). That project became operable in 1993, but shortages in technical support and the restructuring of the regional sonar program precluded its operation after 1995. Since 1995, the original sonar site has degraded and has been deemed unusable. Two sloughs that bypass the site have enlarged enough to possibly allow significant salmon migration. This could compromise salmon passage estimates. As part of the regional sonar-rebuilding program, staff members conducted limited site surveys in 1998. Development of a redesigned sonar project began in 1999 at a new site located 16 miles upriver of Bethel. Development has been suspended indefinitely due to continued staffing difficulties and technical challenges.

SEASON SUMMARY

In 2001, 514 commercial fisheries permit holders took 14,384 chinook, 59,545 sockeye, 220,804 coho, 0 pink and 21,893 chum salmon in the Kuskokwim Area fishery (excluding test fish catches). This was the lowest number of permits fished in the Kuskokwim Area since 1972. The below average harvests were primarily due to below average effort levels and limited fishing time in all districts based on conservative management strategies and limited processor capacity. There were no sales of salmon roe in the Kuskokwim Area in 2001.

The Kuskokwim Area chinook salmon catch was 65% below the most recent 10-year (1991-2000) average catch of 40,839. The price per pound for chinook salmon was $0.36 this year, 16% below the average of $0.43. The sockeye salmon catch was 61% below the average of

151,709. The $0.35 price per pound paid for sockeye salmon was 40% below the average of $0.58. The coho salmon catch was 69% below the average of 534,563. The price of $0.28 per pound was 28% below the average price of $0.39. The chum salmon catch was 92% below the average of 285,921. The price of $0.10 was 47% below the average of $0.19.

Kuskokwim Area permit holders received $749,916 for their catch (excluding bonuses and other incentives not reported on fish tickets). The value of the catch was 75% below the previous 10-year average of $2,998,437 (Figure 1). The average permit holder received $1,459, well below the 10-year average of $3,859 (Table 2).

KUSKOKWIM RIVER

DISTRICTS W-1 AND W-2

As expected, due to the poor chinook and chum salmon runs in 2001 and the need to rebuild the depressed chinook and chum salmon stocks, there was no commercial fishery on the Kuskokwim River in June and July. Based on the test fishery and escapement projects it appeared that the sockeye salmon run was average, but the chinook and chum salmon runs were below average.

The coho salmon run timing was about normal and the river remained closed in July to avoid harvesting chum salmon and to provide additional coho salmon to subsistence fishers. Management transitioned to coho salmon in August when coho began to dominate subsistence and test-fish catches. Throughout August, based on monitoring projects and commercial catch data, coho salmon run strength appeared to be near average. The coho salmon fishery opened on August 3 with a 4-hour period in the lower half of District W-1. This period was restricted to the lower half of District W-1 because of limited processing capacity and to conserve chum salmon. There were a total of ten commercial fishing periods in District W-1 and no periods in District W-2 during the coho season. The first, second, and fifth commercial coho periods were 4 hours long while the remaining 7 periods were 6 hours long. The first, second, fourth, and fifth periods, were restricted to half the district because of limited processing capacity. The half-district openings alternated between the upper (Subdistrict W-1A) and lower (Subdistrict W-1B) half of District W-1. Fishers had to register in one subdistrict and were allowed to transfer only one time after a 48-hour notice. The coho harvest of 192,998 fish was the third lowest commercial harvest since 1976.

Overall, the 2001 Kuskokwim River chinook and chum salmon runs were below average but significantly larger than the runs in 2000, as evidenced by improved subsistence harvest reports, CPUE in the Bethel test fishery, and escapement counts. The Aniak River sonar estimate and the Kogrukluk River weir chum salmon passage exceeded their objectives (Figure 2). Chum salmon passage at the George, Tatlawiksuk, and Takotna River escapement projects were approximately three times higher than observed in 2000 (Figure 2). Chum salmon escapement into the Tuluksak River was the highest of the project's five-year history. Because no commercial fishing occurred in June and July, chinook, sockeye, and chum salmon commercial catches were less than 1% of their recent 10-year averages.

With the exception of the George River, chinook salmon escapements were two to three times those seen in 2000 (Figure 3). The chinook salmon escapement at the Kogrukluk River weir of 9,298 was 7% below the objective of 10,000. The minimum escapement objective for chinook salmon was achieved in two of the five surveyed aerial index streams. Overall, the Kuskokwim River drainage chinook salmon escapement index was almost three times higher than in 2000 (Figure 4). Sockeye salmon passage at the Kogrukluk River weir of 8,776 was 7% below the average escapement of 9,450. There are no pink salmon escapement goals in the Kuskokwim River drainage. Pink salmon escapement counts were very low, which is typical for odd-numbered years.

In all but the George River, coho salmon escapements were below the levels seen in 2000. The coho salmon escapement of 19,387 at the Kogrukluk River weir was 22% below the escapement objective of 25,000 (Figure 5). Coho salmon escapement into the Tuluksak River was the highest of the project's five-year history. Commercial fishing time was below average during the coho salmon run, and effort per period was well below average due to low prices and the restriction of some periods to half of District W-1. The coho salmon harvest was 57% below the recent 10-year average.

In the Kuskokwim River, 412 permit holders received $424,199 for their catch. This is only 21% of the previous 10-year average exvessel value (Table 1). Coho salmon were the most valuable species bringing fishers $422,573, over 99% of the total value.

Kuskokwim Bay

District W-4 (Quinhagak)

Commercial salmon fishing occurs in District W-4, the marine waters adjacent to the village of Quinhagak where the Kanektok River empties into Kuskokwim Bay (Figure 2). Commercial fishing occurred sporadically in the area from 1913 until 1959, with the present day District W-4 commercial fishery being established in 1960 (Pennoyer et al. 1965). Commercial fishing is conducted with the use of drift gillnets in the tidal channels radiating into the bay from the freshwater streams in the district, and with gillnets set near the mouth of the Kanektok River. The fishery is directed towards chinook, sockeye, and coho salmon. Chum salmon are harvested incidentally. Pink salmon is the least valuable species commercially and is not targeted.

Since 1960, commercial salmon harvests in District W-4 have ranged from 4,186 to 302,130 fish, with the average being 116,658 fish (Appendix C.3). Over the last 5 years, commercial harvests in District W-4 have been below the most recent 10-year average of 198,643 fish (Appendix C.2), likely a result of the declining number of permits fishing the district since 1995. Since 1970, the number of permits fishing the district has ranged from 61 to 409 permits, with the average being 237 permits. In recent years, the number of permits fishing the district has been below the most recent 10-year average of 295 (Appendix C.4). The observed decline is likely the result of the poor market value of salmon since 1995, increasing fuel prices, and other economic opportunity in the area. Collectively, these factors have resulted in the value of the commercial

salmon fishery in the district having been below the most recent 10-year average since 1995 (Appendix C.5).

By regulation, District 4 is to have its first commercial opening prior to June 16. In 2001, the commercial fishery did not open until June 21. The first commercial opening was delayed because of the late start in subsistence fishing caused by high water on the Kanektok River and because the single buyer in the district was not prepared to buy fish until then.

The district opened under chinook salmon directed management that allows two 12-hour periods per week provided chinook salmon run strength and processing capacity are adequate. The chinook salmon catches were average for their entire directed management, and the district fished the normal two periods per week. On June 28, the sockeye salmon harvest exceeded that of chinook salmon, and district management was directed to that species. Sockeye salmon directed management allows three 12-hour periods per week provided sockeye salmon run strength and processing capacity are adequate. Sockeye salmon catches were above average for the last week in June and the first week in July. However, the fishing schedule was reduced to two 12-hour periods per week because of limited processing capacity. The sockeye catches were below average from the second week of July through the end of the sockeye directed fishery (August 3). The below average catches were likely the result of the below average number of permits fishing the district during that time. During this time, the sockeye salmon catch rates were mostly average to above average. The district continued the reduced, two periods per week schedule because of limited processing capacity. One commercial opening was cancelled because of a below average sockeye salmon catch and catch rate. There were no commercial openings in the district from July 24 through the 31 because the single registered buyer ceased operations in response to the low volume of sockeye being caught.

The single registered buyer resumed operations on August 1. The coho salmon harvest exceeded that of the sockeye salmon on August 3 and management was directed to that species. The coho salmon management plan allows three 12-hour periods per week provided coho salmon run strength and processing capacity are adequate. Coho salmon catches were below average for the entire coho salmon directed fishery, likely due to below average effort. Coho salmon catch rates were mostly average to above average throughout the season. The district continued fishing the reduced two 12-hour periods per week for the first two weeks in August because of limited processing capacity. Adequate processing capacity did allow the district to fish the normal three 12-hour periods per week schedule during the final two weeks of August.

There is no chum salmon directed fishery in the district, and their harvest is incidental. The chum catch was mostly below average throughout the entire 2001 commercial salmon season. The commercial salmon season ends by regulation on September 8. In 2001, the district closed for the season on August 24 as the single buyer in the district ceased operations.

In 2001, the chinook salmon harvest of 12,775 fish was 40% below the 2000 harvest of 21,229 fish, and 37% below the most recent 10-year average of 20,210 fish. The sockeye salmon harvest of 33,807 fish was 51% below the 2000 harvest of 68,557 fish, and 45% below the most recent 10-year harvest of 61,451 fish. The coho salmon harvest of 18,531 fish was 39% below the 2000 harvest of 30,529 fish, and 67% below the most recent 10-year average of 60,338 fish. The chum

salmon harvest of 17,209 fish was 44% below the 2000 harvest of 30,553 fish, and 69% below the most recent 10-year average of 51,530 fish. The total commercial harvest in 2001 was 82,322 fish, 46% below the 2000 harvest of 150,871 fish, and 59% below the most recent 10-year average of 198,643 fish (Appendix C.3, Estensen 2002a).

In 2001, 159 permits fished the district, 31% below the 230 fished in 2000, and 46% below the most recent 10-year average of 295. The decrease in the number of permits fished is likely the result of the continued decline in market value of salmon, increasing fuel prices, and other economic opportunity in the area. There were 20 commercial fishing periods, 26% below the 27 periods in 2000, and 33% below the most recent 10-year average of 30. The 231 hours of fishing time was 29% below the 324 hours in 2000, and 36% below the most recent 10-year average of 360 (Appendix C.4, Estensen 2002a). As a note, the July 9 and July 12 periods were 6 and 9-hour periods, respectively, because of limited processing capacity. In addition, the commercial effort on August 20 period was hindered by poor weather conditions in the district, resulting in a minimal commercial harvest.

In 2001, the exvessel value of the District 4 commercial harvest was $225,789, 52% below the 2000 exvessel value of $466,167, and 66% below the most recent 10-year average of $661,312 (Appendix C.4, Estensen 2002a). The most valuable species was chinook salmon, providing 41% of the fishery's value. Sockeye salmon was second, providing 39% of the fishery's value. Coho and chum salmon were the third and fourth, providing 14 and 6%, respectively, of the fisheries' value.

District W-5 (Goodnews Bay)

Commercial fishing occurs in District W-5, the marine waters of Goodnews Bay located near the mouth of the Goodnews River (Figure 3). Commercial fishing is conducted primarily with drift gillnets in the tidal channels in Goodnews Bay, and with gillnets set near the mouth of the bay. The fishery is directed towards sockeye and coho salmon. Chinook and chum salmon are harvested incidentally. Pink salmon is the least commercially valuable species and is not targeted.

Since its establishment in 1968, commercial salmon harvests in District W-5 have ranged from 2,879 to 166,053 fish, averaging 62,597 fish. Over the last 5 years, commercial harvests have been below the most recent 10-year average of 80,697 fish (Appendix D.3), likely the result of the declining number of permits fishing the district since 1996. The number of permits fishing District W-5 has ranged from 14 to 125 permits, with the average being 63 permits. In recent years, the number of permits fishing the district has been below the most recent 10-year average of 81 (Appendix D.4). The observed decline is likely the result of the declining market value of salmon since 1995, increasing fuel prices, and other economic opportunity in the area. Collectively, these factors have resulted in the value of the commercial fishery in the district having been below average since 1996 (Appendix D.5).

The combined commercial and subsistence exploitation of the Goodnews River salmon runs since 1991 has ranged from 18 to 50% with an average of 25.8% for chinook, 14 to 43% with an average of 27.4% for sockeye, and 7 to 38% with an average of 19.3% for chum salmon

(Appendix D.1). No exploitation data is available for coho salmon because of the lack of drainage wide escapement data.

The management strategy for District 5 since 1997 has been to delay the commercial opening until late June to increase chinook salmon escapement into the Goodnews River drainage. In 2001, District 5 opened to commercial salmon fishing on June 29. The District 5 commercial fishery opened under sockeye salmon directed management that allows three 12-hour periods per week, provided sockeye salmon run strength and processing capacity are adequate. Sockeye salmon harvests were mostly average from the last week of June through the third week in July, and sockeye salmon catch rates were either record breaking or near record breaking, likely the result of the below average number of permits fishing. During the sockeye directed fishery, the district fished a reduced two 12- hour periods per week schedule because of limited processing capacity. During the third week in July, sockeye salmon escapement at the Middle Fork Goodnews River weir was not adequate to meet their escapement goal. As a result, the fishing schedule during that time was reduced to one 12-hour period per week to allow increased sockeye escapement into the drainage. There were no commercial openings in the district from July 24 through July 31, as the single buyer in the district ceased operations in response to the low volume of sockeye salmon harvested. Commercial fishing continued on August 1 as the single buyer resumed operations. Sockeye catches remained average for the first week in August. On August 8, the coho harvest exceeded the sockeye harvest, and management was directed to that species. Coho salmon directed management allows three 12-hour periods per week provided coho salmon run strength and processing capacity are adequate. In August, coho salmon catches were average for the first two periods and above average for the next three periods. Poor weather conditions prevented a tender from reaching the district for the August 20 opening. Coho catches were below average for the remaining two periods. The commercial salmon season ends by regulation on September 8. The single registered buyer in the district ceased operations for the season after the August 24 period. There is not a chinook or chum salmon directed fishery in the district and their harvests are incidental. The chinook and chum salmon catches were mostly below average for the entire season.

In 2001, the chinook salmon harvest of 1,519 fish was 66% below the 2000 harvest of 4,442 fish, and 40% below the most recent 10-year harvest of 2,547 fish. The sockeye salmon harvest of 25,654 fish was 32% below the 2000 harvest of 37,252 fish and 35% the most recent 10-year harvest of 39,466 fish. The coho salmon harvest of 9,275 fish was 40% below the 2000 harvest of 15,531 fish, and 55% below the most recent 10-year harvest of 20,465 fish. The chum salmon harvest of 3,412 fish was 64% below the 2000 harvest of 7,450 fish, and 77% below the most recent 10-year average of 14,937 fish. The total commercial harvest of 39,860 fish was 39% below the 2000 harvest of 64,682 fish, and 51% less than the most recent 10-year average of 80,697 fish (Appendix D.2, Estensen 2002b).

A total of 32 permits fished the district, 31% less than the 46 permits in 2000 and 61% less than the most recent 10-year average of 81. The decrease in permits is likely the result the declining market value of salmon, increasing fuel prices, and other economic opportunity in the area. There was a total of 16 periods, 36% less than the 25 periods in 2000 and 39% less than the most recent 10-year average of 26. The 183 hours of fishing time in 2001 was 39% less than the 300 hours in 2000, and 46% less than the most recent 10-year average of 340 (Appendix D.3,

Estensen 2002b). Limited processing capacity and sockeye salmon escapement concerns were the primary factors in the reduced number of periods in 2001.

The exvessel value of the 2001 District W-5 commercial catch was $98,849, 64% below the 2000 exvessel value of $213,014 and 66% below the most recent 10-year average of $290,404 (Appendix D.4, Estensen 2002b). Sockeye salmon were the most valuable species contributing 69% of the catches' value. Coho, chinook, and chum salmon each contributed 17%, 10%, and 3% of the exvessel value, respectively.

Enforcement

The Fish and Wildlife Protection Division of the Department of Public Safety was present in the Kuskokwim Area from early June until early September. Personnel available for this program were four commissioned and one non-commissioned officer. They used one C-185 aircraft, three Supercub aircraft, and one skiff. Details on number and type of citations issued for commercial fishing violations are not available at this time.

OUTLOOK FOR 2002

The Alaska Department of Fish and Game does not produce formal forecasts for any salmon runs in the Kuskokwim Area. Salmon run outlooks are qualitative in nature due to the lack of adequate information with which to develop more rigorous forecasts. The commercial harvest outlooks are typically based on a qualitative assessment of parent year spawning escapement, age composition, harvest trends, implications of the current fishery management plan, and expected processing capacity. While the commercial harvest outlooks provide for a general level of expectation, the fisheries are managed based on inseason assessments of the actual runs.

In the Kuskokwim Area, as in some other areas of the state, salmon production has decreased notably for many stocks (Kruse 1998, NOAA 1999). Kuskokwim River chinook and chum salmon have been classified as stocks of concern under the guidelines established in the Policy for the Management of Sustainable Salmon Fisheries (5AAC 39.222). Causes for the loss of productivity have been the subject of much interest and concern, but to date the cause or causes for the declines are unknown. Also unknown is whether the decline in productivity can be expected to continue or not.

The outlook for commercial harvest in 2002 takes into account the recent trend of decreased salmon abundance. Additionally, declining salmon markets, particularly for chum salmon flesh since 1994 and salmon roe since 1997, have contributed to a decline in the commercial salmon harvest in the Kuskokwim Area. These market trends are expected to continue in 2002.

For 2002, the commercial harvest outlook for the Kuskokwim Area consists of 9 to 24 thousand chinook, 40 to 120 thousand sockeye, 18 to 154 thousand chum, less than one thousand pink, and 117 to 370 thousand coho salmon (Table 12).

Kuskokwim River

Chinook:

- Recent Year Trends: diminished commercial harvest for most of the past 10 years and poor to below average harvests in recent years.
- Parent Year Escapements: principal parent years contributing to the 2002 chinook run will be 1996, 1997, and 1998. The escapement was probably average or above average in 1996 and 1997 and below average in 1998.
- 2001 Age Composition Data and Escapement: chinook age data from 2001 is limited; however, the proportion of age-4, -5, and -6 chinook salmon was near average. Chinook escapements were generally much better in 2001 than the three previous years.
- Poor ocean survival appears to have affected the chinook runs in 1998, 1999 and 2000, but less so in 2001.

The department anticipates the chinook run in 2002 to be similar to 2001. Should there be a harvestable surplus, then some chinook harvest could occur in the latter half of the run, but this is also contingent on there being a harvestable surplus of chum salmon and an available buyer. We are tentatively approaching the 2002 season with little expectation of commercial fishing during June and July. Furthermore, reduction of the chinook salmon subsistence harvest may be necessary in 2002. The expected commercial harvest of Kuskokwim River chinook salmon in 2002 is 0 to 1,000 fish.

Chum:

- Recent Year Trends: harvests have been poor to extremely poor since 1997. Overall run abundance in 2001 was below average, but better than 1999 and 2000.
- Parent Year Escapements: principal parent years contributing to the 2002 chum run will be 1997 and 1998. The escapement in both years was poor.
- 2001 Age Composition Data and Escapement: most chum salmon return either at age-4 or 5. The percentage of age-4 chum salmon in 2001 was generally above average and generally above the levels seen in 2000. In addition, chum salmon escapements in 2001 were consistently above the levels observed in 2000 and 1999.
- Poor ocean survival appears to have affected Kuskokwim River chum salmon in 1997, 1998, 1999 and 2000, but less so in 2001.

The 2002 chum run is expected to be similar to, or modestly better than, the run seen in 2001. While the relatively high incidence of age-4 fish coupled with the improved run abundance seen in 2001 provides some encouragement, we are tentatively approaching the 2002 season with little expectation of commercial fishing during June and July. The expected commercial harvest of Kuskokwim River chum salmon in 2002 is 0 to 100,000 fish. Reduction of the chum salmon subsistence harvest may be necessary in 2002.

Sockeye:

Sockeye returns are expected to be average to below average, however little to no commercial harvest is expected due to conservation measures anticipated for chinook and chum salmon. This outlook is intended to provide a general level of expectation, and the fisheries will be managed

based upon inseason assessments of the actual run for chinook and chum salmon. Should actual run abundance prove to have a harvestable surplus of chinook and chum salmon, then some incidental harvest of sockeye could occur provided a buyer is available. The expected commercial harvest of Kuskokwim River sockeye salmon in 2002 is 0 to 20,000 fish.

Coho:

- Recent Year Trends: coho runs since 1997 have been low.
- Parent Year Escapement: primary parent year for the 2002 coho run will be 1998. The escapement in that year was probably below average to near average.
- 2001 Age Composition Data and Escapement: vast majority of coho were age-4 as is typical. The escapements seen in 2001 were mixed when compared to 2000; i.e., some systems did better than in 2000 while other systems did worse. Typically, even year coho runs are stronger than odd year runs.
- Poor ocean survival appears to have affected Kuskokwim River coho salmon in 1997, 1998, 1999, 2000, and 2001 and this may continue to be a factor in 2002.

Below average run abundance is expected to continue in 2002, but the return should be better than 2001 given the tendency for even year dominance in Kuskokwim River coho salmon. The department does anticipate a modest coho salmon directed commercial fishery in 2002. The outlook for the commercial coho harvest is 100,000 to 300,000 fish.

Kuskokwim Bay

Chinook:

- Recent Year Trends: commercial harvests over the past several seasons have been both above and below the 10-year average.
- Parent Year Escapements: the principal parent years contributing to the 2002 chinook run in both districts will be 1996, 1997 and 1998. The aerial survey escapement goal for Kanektok River chinook salmon was achieved in 1996 and 1997, but high water precluded assessment in 1998. The chinook escapement goal for the Middle Fork Goodnews River was not achieved in 1996 and 1997, but it was achieved in 1998. Returns from all three of these parent years have been relatively low in both districts.
- 2001 Age Composition Data and Escapement: most Kuskokwim Bay chinook salmon return at age-4, 5, or 6. For the past three years the commercial chinook harvests from the Kuskokwim Bay have been dominated by returns from the 1995 parent year. However, few chinook return at age-7, so the 1995 parent year will have less influence on the 2002 run size. The 2001 Kanektok River chinook salmon escapement goal was achieved (Appendix C.1). Chinook escapement to the Middle Fork Goodnews River in 2001 was among the best on record, and the total run abundance was above average (Appendix D.1).

The 2002 chinook salmon return to Kuskokwim Bay districts is expected to be below average to average. The District 4 fishery may be impacted by conservation measures directed at conserving Kuskokwim River salmon. In District 5, management actions will continue to be oriented towards rebuilding chinook salmon run strength, as has been the case for the past several years. The Kuskokwim Bay chinook salmon harvest is expected to be 9,000 to 23,000 fish.

Chum:

- Recent Year Trends: commercial harvests have generally been below average since 1996.
- Parent Year Escapements: principal parent years contributing to the 2002 chum run will be 1997 and 1998. The assessment for chum salmon escapement in 1997 and 1998 in the Kanektok River in District 4 is inconclusive, but escapement goals were achieved in the Goodnews River in District 5 in those years.
- 2001 Age Composition Data and Escapement: most chum salmon return at age-4 or 5. These two age classes made up near equal proportions of the 2001 harvests in both districts. Escapement data for Kanektok River chum salmon is inconclusive. For the Goodnews River, the chum salmon escapement goal for the Middle Fork Goodnews River was achieved in 2001 (Appendix A.7), but the total run size was below average (Appendix D.1).

The 2002 chum salmon run is expected to be below average. The District 4 fishery may be impacted by conservation measures directed at conserving Kuskokwim River chinook and chum salmon. The expected commercial harvest from both districts is expected to be 18,000 to 54,000 fish.

Sockeye:

- Recent Year Trends: runs have been average to below average and commercial harvests for both districts have come in above and below the 10-year average.
- Parent Year Escapements: principal parent years contributing to the 2002 sockeye run will be 1997 and 1998. The sockeye escapement goal for the Kanektok River in District 4 was achieved in 1997, but high water precluded assessment in 1998. The sockeye escapement goal was achieved both years on the Middle Fork Goodnews River in District 5.
- 2001 Age Composition Data and Escapement: most Kuskokwim Bay sockeye salmon return at age-4 or 5, but the percentage of age-4 sockeye in 2001 was well below average. Escapement to the Kanektok River in 2001 appeared to be both above goal and above average (Appendix C.1). Sockeye escapement to the Middle Fork Goodnews River was below the escapement goal (Appendix A.7), but the total run size was above average (Appendix D.1).

The 2002 sockeye salmon run to Kuskokwim Bay districts is expected to be average to below average, mostly due to the poor showing of age-4 fish in 2001. The District 4 fishery may also be impacted by conservation measures directed at conserving Kuskokwim River chinook and chum salmon. The expected commercial harvest from both districts in 2002 is 40,000 to 100,000 fish.

Coho:

- Recent Year Trends: commercial harvest levels have been below average for the past three seasons.
- Parent Year Escapements: primary parent year for 2002 coho salmon in both districts is 1998. No information exists for Kanektok River coho escapement for that year, but the Middle Fork Goodnews River escapement in 1998 was above average.
- 2001 Age Composition Data and Escapement: The vast majority of coho salmon were age-4 fish, as is typical. Coho salmon escapement results from the Kanektok River are inconclusive (Appendix A.7), but the escapement to the Middle Fork Goodnews River weir was near average.
- Poor ocean survival appears to have affected Kuskokwim Bay coho salmon in 1997, 1999, 2000, and 2001 and this may continue to be a factor in 2002.

The outlook for the coho salmon run in 2002 is below average. The expected 2002 coho commercial harvest is between 17,000 and 70,000 fish.

PART II. FRESHWATER FINFISH FISHERY

Several species other than salmon, herring and halibut are used for commercial, subsistence, and recreation purposes in the Kuskokwim Area. They are inconnu or sheefish (*Stenodus leucichthys*), whitefish (*Coregonus*) and (*Prosopium*) char (*Salvelinus*), burbot (*Lota lota*), Arctic grayling (*Thymallus arcticus*), northern pike (*Esox lucius*), Arctic lamprey (*Lampetra japonica*), rainbow smelt (*Osmerus mordax*) blackfish (*Dallia pectoralis*), rainbow trout (*Oncorhynchus mykiss*), lake trout (*Salvelinus namaycush*), threespine stickleback (*Gasterosteus aculeatus*), ninespine stickleback (*Pungitius pungitius*), and longnose sucker (*Catostomus catostomus*). The Division of Sport Fish documents the recreational fisheries.

Subsistence Fishery

Methods used for harvesting subsistence freshwater finfish include set and drift gillnets, seine, fish wheels, long lines, dip nets, jigging (hook and line through the ice), rod-and-reel and pots (locally called "traps"). Subsistence harvests occur year round. These fish may be eaten fresh, dried, smoked or frozen. Most are used for human consumption; however, some are also used for dog food. Regulations do not limit the number of freshwater fish that may be harvested for subsistence. Harvest data for these species are not collected on an annual basis. Data for some Kuskokwim Area communities may be found in the Division of Subsistence Technical Paper series.

Commercial Fishery

The commercial fishery has been sporadic, primarily harvesting whitefish and burbot for local markets. Some of the whitefish harvest occurs under the ice in the winter.

A permit from the Commercial Fisheries Entry Commission is required. A permit from the department to conduct commercial fisheries on whitefish, pike, smelt, burbot and lamprey is also

required. Those species may also be taken incidentally to commercial salmon fishing. There were no freshwater permits issued by the Bethel CF office in 2001 for the Kuskokwim Area. The guidelines for permits are:

1. All waters of the area except the Johnson River drainage and Whitefish Lake are open to commercial harvest of freshwater finfish. The heavy subsistence utilization of freshwater species in these areas is the reason for the closure.

2. Only whitefish, cisco, smelt, pike, burbot, and lamprey may be taken. Sheefish, char and trout may not be taken due to their smaller populations, lower reproductive rates and their heavy utilization in the subsistence and sport fisheries.

3. All legal commercial gear types are allowed.

4. Gillnets may not be less than 2 1/2 or greater than 5 inches stretch mesh. Long lines and set lines must use hooks with a gap between point and shank larger than 3/4 inch.

Appendix F.1 presents the freshwater finfish fishery catches and value since 1977. No commercial landings of whitefish were documented in 2001 (Appendix F.1).

Stock Status

While the department does not monitor the status of the freshwater species in the Kuskokwim Area, FWS began operating a weir in the river below Whitefish Lake to monitor whitefish in 2001. Limited department observations, advisory committee recommendations and fishers interviews give no indication of declining populations in most drainages. However, residents of Kasigluk, Atmautluak and Nunapitchuk have expressed concerns that subsistence fishers are overexploiting the whitefish stocks in Nunavakpak Lake (near Kasigluk).

PART III. MISCELLANEOUS SALTWATER FINFISH

A poorly documented commercial fishery on Saffron or "Tom Cod" (*Eleginus gracilus*) has occurred in the Kuskokwim Area for some time. These fish were surplus to subsistence needs and fishers and local stores were, and often still are, unaware of the regulatory requirements. The department has been trying to inform buyers and sellers of these requirements. Since 1988, we have had information on the sale of fish exported from the coastal villages to Bethel. Sales within the villages are still undocumented. No commercial landings were documented in 2001 (Appendix G.1).

PART IV. HERRING FISHERY

INTRODUCTION

Area and District Boundaries

There are five commercial gillnet sac roe districts and a subsistence herring fishery in the Kuskokwim Area. The Security Cove District includes all waters between the latitude of Cape Newenham and the latitude of the Salmon River (Figure 8). The Goodnews Bay District includes the waters of Goodnews Bay inside the north and south spits at the mouth and a line between Ukfigag Creek and Tunulik River. The Cape Avinof District (Figure 8) consists of all waters landward of Kikegtek, Pingurbek and Kwigluk Islands from the longitude of Ishkowik River (162° 44' W. long.) to the longitude of the Ursukfak River (164° 11' W. long.). The Nelson Island District consists of all waters north of Chinigyak Cape and east of Atrnak Point, and all waters north of Talurarevuk Point and south of the southernmost tip of Chinit Point and east of 165° 30' W. long. and all waters north of the northernmost tip of Chinit Point and south of Kigigak Island and east of 165° 30' W. long. (Figure 9). The Nunivak Island District includes all waters extending three miles seaward of mean low water along the northern and east sides of Nunivak Island from Kikoojit Rocks (60° 20' N. lat., 166° 40' W. long.) to Cape Mendenhall (59° 45.17' N. lat., 166° 07' W. long.).

Management Programs

The Security Cove, Goodnews Bay and Nunivak Island commercial herring fisheries are managed under the Bering Sea Herring Fishery Management Plan which sets the maximum exploitation rate at 20% of the estimated spawning biomass. The department attempts to harvest stocks in good condition (large volume, increasing abundance, good recruitment) at the upper end of the exploitation range (15-20%). Stocks in poor condition (small volume, decreasing abundance, poor recruitment) are exploited at lower than maximum rates (0-15%). The Alaska Board of Fisheries has directed the department to manage the commercial herring fisheries in the Cape Avinof District for an exploitation rate not to exceed 15% of the estimated available biomass. To provide additional protection for the subsistence herring harvest in the Nelson Island District, the Board of Fisheries has established the following guidelines:

1. The commercial fishery will be allowed to take up to 15% of the herring biomass in 2001, compared to up to 20% for most other fisheries having stocks of similar size and condition.

2. The commercial fishing season will be opened when a biomass of 3,000 tons or significant spawning activity is documented.

3. Periodic closures of the commercial fishery will be scheduled, during which time only subsistence fishing will be allowed.

4. Several important subsistence use areas occur throughout the district (e.g. waters around Cape Vancouver) and specific areas may be closed to commercial fishing to insure the

adequacy of subsistence harvests.

5. The department will use all available means, including input from local residents, to insure the adequacy of subsistence herring harvests during the commercial fishing season.

All Kuskokwim Area commercial herring fisheries are opened and closed by emergency order to provide for an orderly fishery and allow periodic assessment of herring biomass. In 1990, the Nelson and Nunivak Island Districts were given limited entry status by the Commercial Fisheries Entry Commissions (CFEC). The Goodnews Bay District was closed to new entry beginning in 1997 and given limited entry status with 182 limited entry permits being issued.

Season Summary

The total Kuskokwim Area Pacific herring harvest for 2001 was 1,978 short tons (st) with a total estimated value to the fishers of approximately $205,000 (Appendix H.1). The price paid in all districts ranged from $100 to $125 per st for 10% roe recovery, with an increase or decrease of $10 per st for each percentage point above or below 10%. This was well below the 2000 price of $200-$350 per ton. Commercial fisheries occurred in all but the Nunivak Island District in 2000. All herring were purchased as sac roe, defined as having roe content over 8%. In 2001, processing capacity was severely limited in the Kuskokwim Area because of lack of processor interest due to depressed herring markets.

Fishing effort, measured in number of fishers who made deliveries, decreased from 2000 levels in all districts. One hundred seventy-three permit holders landed herring in the Kuskokwim Area, a decrease of 50% from 2000. Effort decreased by 29% in Security Cove, 60% in Goodnews Bay, 48% at Nelson Island, and 43% at Cape Avinof (Appendix H.2). Average income per permit holder ranged from $261 in the Goodnews Bay District to $1,964 at Security Cove (Appendix H.3). Six companies bought herring in the Kuskokwim Area in 2001. Average roe recovery, from sac roe quality herring, ranged from 9.8% in Cape Avinof to 11.3% in the Goodnews Bay District. The overall average sac roe content for all Kuskokwim Area districts was 10.4%. Exploitation rates in individual districts (excluding Nunivak Island) ranged from 0.8% in the Goodnews Bay District to 19.7% in the Security Cove District (Appendix H.1). The overall exploitation rate for the Kuskokwim Area was 7.6% of the available biomass.

The 2001 total estimated herring spawning biomass was 26,161 st for the surveyed portion of the Kuskokwim Area herring districts. This was 17% higher than the 2000 estimate (Appendix H.1). Ages 9 and older herring comprised 38% of the total biomass (Table 18). Recruit herring (ages 3, 4, and 5) accounted for 54% of the total run in number of fish (Table 19).

STOCK STATUS

Assessment Methods

Aerial surveys were flown throughout the Pacific herring spawning season in all Kuskokwim Area commercial fishing districts to determine relative abundance, distribution, and biomass of

herring. Occurrence and extent of milt, numbers of fishing vessels and visibility features affecting survey quality were also recorded. Data collection methods were similar to those used since 1978.

Approximately 23 hours were spent conducting aerial surveys in the Kuskokwim Bay Area in 2001: 5.8 hours in Security Cove, 7.4 hours in Goodnews Bay, 1.9 hours at Cape Avinof, 4.9 hours at Nelson Island, and 3.2 hours at Nunivak Island. Weather and sea conditions were variable throughout the Kuskokwim Bay Districts for most of the season, with most surveys being conducted under poor conditions.

Standard conversions of 1.52 tons/538 ft2 (water depths less than 16 ft), 2.58 tons/538 ft2 (water depths between 16 and 26 ft) and 2.83 tons/538 ft2 (water depths greater than 26 ft) were used to convert estimated herring school surface areas to biomass within all districts.

Due to budget cuts, ADFG test fishing with variable mesh gillnets (VMG) did not occur in the Nunivak Island District. The test fishing data are used to determine age, sex, size, and sexual maturity of herring and to note occurrence of other schooling fishes. Data from Goodnews Bay was combined with data from Security Cove to estimate the metrics for the Security Cove District and data from Nelson Island was used for the Nunivak Island metrics.

In past years, the age composition of herring sampled with VMG at Security Cove and Goodnews Bay were generally very similar. In 2001, there was a much larger than normal difference in the proportion of recruit herring from Security Cove and Goodnews Bay VMG samples. At Security Cove, the relatively late start and small sample size resulted in the later portion of the run being sampled at a much greater rate than the early portion of the run. This probably resulted in a sample highly biased toward younger aged fish. The sampling at Goodnews Bay was done more uniformly throughout the duration of the run than at Security Cove and probably better reflected the true age composition of the return.

The sampling goal for test fish crews was to sample a minimum of 60 herring per day or 420 per week from each district. Commercial landings were sampled in the same fishing districts. Age composition of herring collected from the department test fishery and the commercial catch is summarized, by district, in Table 19. Additionally, within all districts, commercial gillnet vessels voluntarily collected herring samples that were evaluated by industry roe technicians for quality of roe content. This program allowed the openings to be timed to maximize roe production. This information also assists with interpretation of aerial survey biomass data.

Ground surveys conducted in some districts provide information on the distribution and density of eelgrass beds and herring spawn deposition.

Spawning Populations

Security Cove District

Thirteen aerial surveys were flown from 2 May to 4 June. Survey conditions ranged from fair to unsatisfactory. Herring spawn was observed on survey flights conducted from 9 May to 20 May.

During an aerial survey flown under fair conditions on 15 May, an estimated 4,308 st of herring were sighted in the district. On 6 June, 898 st of herring were observed in the district during an aerial survey flown under poor conditions. This biomass was distinct enough in time and distance that it was considered a separate group of fish from those seen in prior surveys. The 15 May and 6 June biomass estimates were combined and used as the total biomass estimate for 2001 and the guideline harvest level (GHL) was raised to 1,041 st as a result. A total of 20 miles of spawn was observed in the district with peak spawning activity (5.5 miles) on 15 May.

A total of 880 herring were sampled using VMG for Age-Sex-Length (ASL) data in Security Cove. These samples were combined with the 1,249 herring collected in Goodnews Bay to estimate age composition of the Security Cove return. Age 9 and older herring comprised 34% of the biomass (Table 18) while 3- to 5-year-old fish accounted for 73% of the return in numbers of fish (Table 19).

Goodnews Bay District

Twelve aerial surveys were flown in the Goodnews Bay District between 2 May and 4 June in 2001. Four surveys were flown under fair conditions while the rest were flown under poor or unsatisfactory conditions. The largest concentration of herring was observed during a survey flown on 15 May, under fair to poor conditions, and was estimated at 5,208 st. The preseason biomass projection of 5,755 st was used as the biomass estimate for 2001 because an accurate total biomass estimate was not obtained due to poor survey conditions. Approximately 3.5 miles of spawn was observed during aerial surveys of the district with a peak spawn of 1.5 miles observed on 15 May.

Test fishing crews sampled 1,249 herring for ASL data from 6 May to 26 May. Age 9 and older herring made up 45% of the biomass (Table 18) while age 3 to 5 fish were 46% of the return in numbers of fish (Table 19).

Cape Avinof District

In 2001, three aerial surveys were flown in the Cape Avinof District between 2 June and 5 June. A peak biomass of 993 tons was observed on 5 June. A total of 5.0 miles of spawn was observed in the district. The preseason biomass estimate of 3,486 st was used as the total biomass estimate.

The department's test fish crew at Kipnuk captured 480 herring between 2 June and 8 June to sample for ASL data. Age 9 and older herring made up 25% of the biomass (Table 18) while age 3-5 year old herring represented 62% of the return in numbers of fish (Table 19).

Nelson Island District

Fifteen aerial surveys were flown between 21 May and 5 June during the 2001 season. All surveys were flown under poor to unsatisfactory conditions. During an aerial survey flown on 4 June, 2,409 st of herring were observed in the district. Approximately 2.5 miles of spawn was observed during aerial surveys. Because of unsatisfactory aerial survey conditions, the total

biomass estimate of 6,057 st was estimated using the ratio of commercial CPUE in 2001 verses 2000 and the estimated biomass in 2000.

Test fishing with variable mesh gillnets occurred from 18 May to 12 June. ASL and maturity information was collected from 1,411 herring. Age 9 herring made up 26% of the biomass (Table 18) while age 3 to 5 herring accounted for 41% of the numbers of fish (Table 19).

Nunivak Island District

Three aerial surveys were flown between 2 June and 5 June in the Nunivak Island District during the 2001 season. All surveys were made under fair conditions. During an aerial survey on 5 June, 5,657 st of herring were observed. Total biomass was assumed to be 5,657 st based on this survey. About 4 miles of spawn were observed during aerial surveys with peak spawning (2 miles) observed on 5 June. Spawning activity was documented at various locations on the east and south shores of Nunivak Island.

2001 marked the second year for cooperative purse seine fishing in the Nunivak Island District. In the winter of 2000, the Board of Fisheries adopted regulations that allowed for the development of a cooperative herring purse seine fishery in the Nunivak Island District. In 2001, the Board made the regulation permanent by removing the sunset clause in the 2000 regulation. During the 2001 season, no processor showed interest in buying herring in the district and as a result, no commercial fishery occurred.

No herring were sampled for ASL data from the Nunivak Island District in 2001. Age composition information was interpolated from data collected using VMG in the Nelson Island District.

Central Kuskokwim Bay

The Central Kuskokwim Bay area extends from Jacksmith Bay, south of Quinhagak, to the Ishkowik River (Figure 1). No commercial herring fishing districts are located in this area. Three aerial surveys were flown in this area from 2 May to 4 June. All flights were flown under unsatisfactory conditions. No herring or spawn was observed during these surveys.

SUBSISTENCE FISHERY

Subsistence fishing for Pacific herring in the northeastern Bering Sea is very important in villages of the Yukon-Kuskokwim River delta. The subsistence fishery is conducted primarily by residents of the coastal villages of Kwigillingok, Kongiganak, Kipnuk, Chefornak, Toksook Bay, Umkumiut, Nightmute, Tununak, and Newtok. The herring stocks utilized by the subsistence fishery are the same ones targeted by area residents in the commercial fishery in the nearby commercial fishing districts.

Subsistence harvest surveys occurred annually in Nelson Island villages from 1985 to 1996 and have occurred sporadically in Kuskokwim delta villages since 1975. Average annual herring

subsistence harvests have been at least 110 tons since 1975 (Burkey et al. 1998). No subsistence surveys were conducted of Kuskokwim Area communities in 2001. Subsistence survey results reflect harvest trends and reported catches represent minimum figures because not all fishers are contacted and other Kuskokwim River delta villages were not surveyed.

COMMERCIAL FISHERY

Security Cove District

The 2001 harvest in the Security Cove District was 1,024 st of sac roe herring with an average roe content of 10.7%. Six processors bought herring from 56 permit holders who made 209 deliveries in four fishing periods with 17.5 hours total fishing time. The estimated exvessel value was $110,000. The exploitation rate was 19.2% based on the aerial survey biomass estimation of 5,206 st.

On 17 May, the first fishing period opened for two hours starting at 12:30 AM (Table 20). Four-one permit holders delivered 88.7 st of sac roe quality herring with an average roe content of 10.3%. The second opening occurred on 17 May for six hours starting at 2:30 PM. Fifty-four permit holders delivered 293.7 st of herring with a 10.0% average roe content. The third opening occurred on 18 May for six hours starting at 4:00 PM. Forty-six permit holders delivered 379.6 st with an average roe content of 10.9%. The final period was for 3.5 hours on 19 May starting at 4:30 PM. Thirty-five permit holders delivered 262.5 st of herring with an average roe content of 11.5%.

A total of 366 herring were sampled from the commercial catch. Age composition was 59% age 9 or older, 40% age 6-8 and less than 1% age 5 or younger in numbers of fish (Table 19).

Goodnews Bay District

The 2001 harvest was 45.3 st of sac roe herring with an average roe content of 11.3%. No waste herring was reported. One processor bought herring from 23 permit holders who made 51 deliveries in three fishing periods with 16 hours total fishing time. The estimated exvessel value was $6,000. The exploitation rate was 0.8% of the available biomass.

On 21 May, the first fishing period opened for five hours at 5:00 PM. Sixteen permit holders delivered 15.0 st of sac roe herring with an 11.7% average roe content. During the second period on 22 May when 16 permit holders delivered 11.2 st during a 5-hour opener. The last period was on 22 May when 16 permit holders delivered 19.2 st. The fishery ended when the processor left the district because of the low fishing effort and harvest rates.

The test fish crew sampled a total of 200 herring from the commercial catch. Age composition was 61% age 9 or older, 30% age 6-8, and less than 2% age 5 or less in numbers of fish (Table 19).

Cape Avinof District

The 2001 harvest was 231.0 st of sac roe herring with an average roe content of 9.8%. One processor bought herring from 45 permit holders who made 208 deliveries in nine fishing periods with a total fishing time of 63 hours. The estimated exvessel value was $23,000. The exploitation rate was 6.6% based on a preseason biomass projection of 3,486 st.

On 4 June the first fishing period opened for five hours starting at 8:00 AM. Nine permit holders delivered 12.1 st of herring with a 9.9% average roe content. Between 4 June and 8 June there were eight more fishing periods for a total of 58 hours of fishing time. Catches ranged from 1.56 st on 7 June to 64.4 st on 4 June (Table 20).

A total of 399 herring were sampled from the commercial catch in the Cape Avinof District in 2001. Age composition was 52% age 9 or older and 47% age 6-8 in numbers of fish (Table 19).

Nelson Island District

The 2001 harvest was 678.3 st of sac roe herring with an average roe content of 10.4%. No waste was reported. One processor bought herring from 49 permit holders who made 236 deliveries in five fishing periods with a total fishing time of 25.5 hours. The estimated exvessel value was $66,000. The exploitation rate was 11.2% based on a biomass estimate of 6,057 st. Aerial surveys were conducted under largely unsatisfactory conditions in 2001 so the biomass estimate was derived from comparing historic commercial CPUE data.

On 28 May, the first fishing period opened for two hours starting at 12:30 AM (Table 20). No herring were delivered during this period. The second period was for four hours beginning 4:30 M on 29 May. Fourteen permit holders harvested 4.2 st of sac roe herring with an average roe content of 12.2%. The third period occurred on 20 May for six hours starting at 2:00 PM. A total of 177.6 st of herring with an average roe content of 10.3% were delivered by 38 permit holders. The next period was for five hours starting at 5:00 PM on 31 May. Harvest was 253.2 st with an average roe content of 10.3% delivered by 48 permit holders. The fifth period lasted 3.5 hours on 1 June and 48 permit holders delivered 197.2 st with an average roe content of 10.4%. The last period was for five hours starting at 12:00 AM on 8 June. Catch from this period was 46.1 st of herring with 10.0% average roe content. Because of limited processing capacity, only 50 fathoms of gear was allowed during the last opening.

A total of 389 herring were sampled from the commercial catch. Age composition was 75% age 9 or older and 24% age 6-8 in numbers of fish (Table 19).

Nunivak Island District

Because of the lack of processor interest, there was no commercial fishery in the Nunivak Island District in 2001.

Enforcement

The Division of Fish and Wildlife Protection (FWP) was present in the Security Cove and Goodnews Bay Districts this year. Two personnel from FWP were involved in Kuskokwim Bay herring fisheries. Enforcement officers utilized a Supercub and a Cessna 185 aircraft.

OUTLOOK AND MANAGEMENT STRATEGY FOR 2002

Projections from postseason escapement estimates; using historical mean rates of survival, current mean weights for each age class, and estimates of recruitment for each age class (Wespedstad 1982); suggest that the 2002 spawning biomass for the Kuskokwim Bay herring stocks (Security Cove to Nunivak Island) will be approximately 24,208 st with a projected harvest of 4,477 st (Table 21). If the return is as expected, a moderate increase over the projected 2001 biomass will be observed in the Cape Avinof, Nelson Island, and Nunivak Island districts while a slight decrease in biomass will be observed in the Security Cove and Goodnews Bay districts. However, variability in the quality of aerial survey assessments of biomass and deviations from the assumed survival or recruitment rates may result in the observed biomass being either above or below these projections. Therefore, harvest levels will be adjusted during the season according to observed herring spawning biomass. In addition, in accordance with the AYK Region harvest policy, newly recruited age classes (age 2 through 5- year-old herring) will not be targeted by the commercial fishery. If it is not possible to determine herring abundance using aerial survey methods, stock abundance will be assessed using information from the projected biomass, test and commercial catches, and spawn deposition observations.

Security Cove District

The 2002 projected return to the Security Cove District is 4,478 st. A 20% exploitation rate would result in a harvest of 896 st (Table 21). A larger catch may occur if the 2002 biomass assessment is greater than the projection. Commercial fishing will not be allowed until the observed biomass reaches 1,200 st or significant spawning activity is observed. The occurrence and length of fishing periods will depend on stock strength, fishing effort, and spawning activity.

Age 6 and 9 herring are expected be the dominant age classes in the 2002 return. Age 9 and older herring are expected to comprise approximately 32% of the biomass. The age structure of herring samples from the Security Cove and Goodnews Bay Districts in 2001 was combined and used to project the 2002 herring return to the Security Cove District.

Goodnews Bay District

The management strategy for this district will be similar to that planned for Security Cove. The season will open and close by emergency order when a biomass of 1,200 st is observed or significant spawning activity occurs. The 2002 projected return of herring to the Goodnews Bay District is 5,532 st. A 20% exploitation rate would result in a harvest of 1,106 st (Table 21). A larger catch may occur if the 2002 biomass assessment is greater than the projection.

In Goodnews Bay, age 5, 6, and 9 herring are expected to be the dominant age classes in 2002. Age 9 and older herring are expected to comprise 31% of the biomass.

Cape Avinof District

Either significant spawning activity or a biomass of 500 st must be observed before the commercial herring season can be opened. The projected 2002 biomass for the Cape Avinof District is 3,491 st (Table 21). The exploitation rate will be no greater than 15% because of the limited database for this area and the priority of subsistence fishing. Assuming a 15% commercial exploitation rate, the projected harvest would be 524 st of herring.

Age 5, 6, and 9 herring are expected to dominate the returning population in Cape Avinof in 2002. Age 9 and older herring are expected to comprise approximately 31% of the biomass.

Nelson Island District

In the Bering Sea Herring Fishery Management Plan, the Alaska Board of Fisheries set a minimum biomass threshold of 3,000 st necessary for a commercial herring fishery in the Nelson Island District. The inseason estimate of herring biomass must exceed the threshold level before a commercial fishery can be allowed. The spawning biomass projected to return to the Nelson Island District in 2002 is 5,290 st (Table 21). The Board of Fisheries has set the exploitation rate for 2002 at 16%. This translates to a harvest of 858 st of herring. A larger catch may occur if the 2002 biomass assessment is greater than the projection. Guidelines established by the Board of Fisheries (see page 101) that provide additional protection for the subsistence harvest of herring will be followed.

Age 6 and 9 are expected to be the dominant age groups in 2002. Age 9 and older herring are expected to comprise between 50% of the biomass in 2002.

Nunivak Island District

The commercial season will open when the biomass reaches 1,500 st or when significant spawning is observed. The projected biomass of herring returning to the Nunivak Island District in 2002 is 5,417 st. A 20% exploitation rate would result in a 1,083 st harvest (Table 21). A larger catch may occur if the 2002 biomass assessment is greater than the projection.

Age 5, 6, and 9 herring are expected to be the dominant age groups in the 2002 return. Age 9 and older herring are expected to comprise between 50% of the return. The age composition of herring sampled in the Nelson Island District in 2001 was used to project the 2002 herring return for the Nunivak Island District.

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Table 1. Salmon run assessment programs operated in the Kuskokwim Area during 2001.

Project Name	Location	Primary Objectives	Duration	Agency	Responsibility
Salmon Management Plan	Kuskokwim Area	- develop a comprehensive plan for managing salmon stocks of the Kuskokwim Area. - define goals and objectives. - identify potential opportunities and concerns. - recommend appropriate procedures. - evaluate priorities.	June - Sept.	ADFG/CF	all aspects
Subsistence Catch and Effort Assessment	Kuskokwim Area	- document and estimate the catch and associated effort of the subsistence salmon fisheries via interviews, catch calendars, mail-out questionnaires and telephone interviews.	Post-season	ADFG/S	all aspects
Escapement Sampling	Kuskokwim Area	- estimate age, sex and length of chinook, sockeye, chum and coho salmon from selected tributary spawning populations.	June - Sept	ADFG/CF	all aspects
Aerial Surveys	Kuskokwim Area	- index relative abundance of chinook salmon spawning escapement in selected streams througout the Kuskokwim Area.	July - Aug	ADFG/CF	all aspects
		- index relative abundance of sockeye salmon spawning escapement in the Kanektok and Goodnews Rivers.			
Sport Catch, Harvest and Effort Assessment	Kuskokwim Area	- statewide mail-out survey to estimate sport catch, harvest and effort	post-season	ADFG/SF	all aspects
Commercial Catch and Effort Assessment	Districts 1, 2, 4 and 5	- document and estimate the catch and associated effort of the commercial salmon fishery via receipts (fish tickets) of commercial sales and dock side sampling.	June - Sept	ADFG/CF	all aspects
Commercial Catch Sampling	Districts 1, 4 and 5	- determine age, sex, and length of salmon harvested in the commercial fisheries.	June - Sept	ADFG/CF	all aspects
Bethel Test Fishery	Bethel Area RM. 80	- index relative run timing of chinook, sockeye, chum, and coho salmon using drift gillnets - index relative run abundance of chinook, sockeye, chum, and coho salmon using CPUE derived from drift gillnet catches.	June - Aug	ADFG/CF ONC	all aspects crew support
Kwethluk River Weir	mile 51 Kwethluk River RM. 99	- estimate daily escapement of chinook, sockeye, chum, coho and pink salmon into the Kwethluk River. - estimate age, sex and length composition of chinook, chum, and coho salmon escapement. - collect environmental / habitat information	June - Sept	USFWS ADFG/CF OVK NMFS	all aspects planning & crew support funding
Tuluksak River Weir	mile 135.16 Tuluksak River RM. 136	- estimate daily escapement of chinook, sockeye, chum, coho, and pink salmon into the Tuluksak River. - estimate age, sex and length composition of chinook, chum, and coho salmon escapement. - collect environmental / habitat information	June - Sept	USFWS ADFG/CF TUTC OSM	all aspects planning & crew support funding
Aniak River Sonar	mile 12 Aniak River RM. 225	- estimate daily escapement of salmon into the Aniak River. - estimate age, sex and length composition of chum salmon escapement	June - July	ADFG/CF AVCP NMFS	all aspects crew support funding

- continued -

Table 1. (page 2 of 2)

Project Name	Location	Primary Objectives	Duration	Agency	Responsibility
George River Weir	mile 4 George River RM. 309	- estimate daily escapement of chinook, sockeye, chum, pink, and coho salmon into the George River. - estimate age, sex and length composition of chinook, chum, and coho salmon escapement. - collect environmental / habitat information	June - Sept	KNA ADFG/CF BSFA OSM NMFS	all aspects all aspects funding
Kogrukluk River Weir	mile 85 Holitna River Drainage RM. 335	- estimate daily escapement of chinook, sockeye, chum, and coho salmon into the Kogrukluk River. - estimate age, sex and length composition of chinook, chum, and coho salmon escapement	June - Sept	ADFG/CF ONC NMFS	all aspects crew support funding
Tatlawiksuk River Weir	mile 2.5 Tatlawiksuk River RM. 383	- estimate daily escapement of chinook, sockeye, chum, pink, and coho salmon into the Tatlawiksuk River. - estimate age, sex and length composition of chinook, chum, and coho salmon escapement. - collect environmental / habitat information	June - Sept	KNA ADFG/CF BSFA NMFS OSM	all aspects all aspects funding
Takotna River Weir	mile 35 Takotna River RM. 507	- estimate daily escapement of chinook, chum, and coho salmon into the Takotna River. - estimate age, sex and length composition of chinook, chum, and coho salmon escapement. - collect environmental / habitat information	June - Sept	TATC ADFG/CF BSFA NMFS OSM	all aspects planning & supplies funding
Kanektok River Weir	mile 13 Kanektok River Kuskokwim Bay	- estimate daily escapement of chinook, sockeye, chum, pink, and coho salmon into the Kanektok River. - estimate age, sex and length composition of chinook and chum salmon escapement.	June - Sept	NVK ADFG/CF OSM BSFA	all aspects planning & supplies funding funding
Middle Fork Goodnews River Weir	mile 5 Middle Fork Goodnews River Kuskokwim Bay	- estimate daily escapement of chinook, sockeye, chum, pink, and coho salmon into the Middle Fork Goodnews River. - estimate age, sex and length composition of chinook, sockeye, chum, and coho salmon escapement	June - Sept	ADFG/CF OSM	all aspects funding for coho extension

ADFG/CF = Division of Commercial Fisheries, Alaska Department of Fish and Game
ADFG/S = Division of Subsistence, Alaska Department of Fish and Game
ADFG/SF = Division of Sport Fish, Alaska Department of Fish and Game
AVCP = Association of Village Council Presidents
BIA = Bureau of Indian Affairs
BSFA = Bering Sea Fishermen's Association
KNA = Kuskokwim River Native Association
NMFS = National Marine Fisheries Service
NVK = Native Village of Kwinhagak
ONC = Orutsararmuit Native council
OSM = Federal Office of Subsistence Management
OVK = Organized Village of Kwethluk
TATC = Takotna Tribal Council
TUTC = Tuluksak Traditional Council
USFWS = U.S. Fish and Wildlife Service

Table 2. Kuskokwim Area salmon entry permits issued by village, 1999 - 2001[a].

Village	1999	2000	2001
Akiachak	67	67	65
Akiak	23	23	22
Aniak	10	11	10
Atmautluak	26	28	26
Bethel	167	162	162
Chefornak	3	3	2
Chuathbaluk	1	1	2
Eek	37	38	36
Goodnews Bay	27	26	25
Kalskags	7	5	4
Kasigluk	44	44	44
Kipnuk	15	15	13
Kongiganak	20	18	16
Kwethluk	56	57	55
Kwigillingok	19	19	16
Napakiak	39	28	37
Napaskiak	34	32	33
Nunapitchuk	46	47	45
Oscarville	1	1	1
Platinum	5	5	4
Quinhagak	84	84	82
Sleetmute	1	1	1
Tuluksak	27	27	26
Tuntutuliak	43	42	42
Tununak	1	0	0
Kuskokwim Area Subtotal	***803***	***784***	***769***
Anchorage	12	15	14
Dillingham	1	1	1
Fairbanks	1	1	1
Kenai	0	1	2
Kodiak	0	1	0
Manokotak	1	1	1
Noorvik	0	0	1
Sitka	0	0	1
Sterling	0	1	0
Twin Hills	1	1	1
Wasilla	1	1	1
Non-Local Alaska Resident Subtotal	***17***	***23***	***23***
Alpharetta, GA	1	1	1
Comstock, TX	1	1	0
Florence, OR	0	0	1
Honey in the Hills, FL	1	0	1
Tacoma, WA	1	1	1
Valencia, CA	1	1	1
Non-Resident Subtotal	***5***	***4***	***5***
Total Number of Permits	***825***	***811***	***797***

[a] Number of permits that were renewed.

Table 3. Harvest and ex-vessel value of Kuskokwim Area salmon catch by district, 2001.

	Chinook	Sockeye	Coho	Pink	Chum	Total
Lower Kuskokwim River, District W-1			**2001**			
Fish	90	84	192,998	0	1,272	194,444
Pounds	1,484	663	1,457,147	0	8,274	1,467,568
Price	0.36	0.40	0.29		0.10	
Value	$534	$265	$422,573	$0	$827	$424,199
			Ave. 1991-2000			
Fish	17,427	49,917	440,303	4,600	208,897	721,144
Value	$132,709	$232,606	$1,303,290	$1,140	$315,119	$1,984,864
Middle Kuskokwim River, District W-2			**2001**			
Fish	0	0	0	0	0	0
Pounds	0	0	0	0	0	0
Price						
Value	$0	$0	$0	$0	$0	$0
			Ave. 1991-2000			
Fish	655	875	13,457	9	7,410	22,406
Value	$6,163	$4,073	$41,446	$3	$10,054	$61,739
Quinhagak, District W-4			**2001**			
Fish	12,775	33,807	18,531	0	17,209	82,322
Pounds	256,733	254,165	162,886	0	129,068	802,852
Price	0.36	0.35	0.20		0.10	
Value	$92,424	$88,958	$32,577	$0	$12,907	$226,866
			Ave. 1991-2000			
Fish	20,210	61,451	60,338	11,386	54,677	208,062
Value	$142,476	$251,011	$193,292	$2,630	$72,022	$661,431
Goodnews Bay, District W-5			**2001**			
Fish	1,519	25,654	9,275	0	3,412	39,860
Pounds	29,991	196,224	85,448	0	25,864	337,527
Price	0.34	0.35	0.20		0.10	
Value	$10,197	$68,678	$17,090	$0	$2,586	$98,551
			Ave. 1991-2000			
Fish	2,547	39,466	20,465	3,629	14,937	81,044
Value	$17,862	$173,290	$77,858	$857	$20,538	$290,405
Kuskokwim Area Total			**2001**			
Fish	14,384	59,545	220,804	0	21,893	316,626
Pounds	288,208	451,052	1,705,481	0	163,206	2,607,947
Price	0.36	0.35	0.28		0.10	
Value	$103,155	$157,901	$472,239	$0	$16,321	$749,616
			Ave. 1991-2000			
Fish	40,839	151,709	534,563	19,624	285,921	1,032,656
Value	$299,210	$660,980	$1,615,886	$4,630	$417,733	$2,998,439
Avg weight	20.0	7.6	7.7		7.5	

Table 4. Executive summary of working group and department actions, 2001.

Date	Comment
12 March	Informational meeting: The Kuskokwim River Salmon Rebuilding Management Plan was reviewed and management options under the new plan were discussed. It was agreed that a cooperative appeal for subsistence and sport fishers to conserve chinook and chum salmon should be issued.
19 March	Informational meeting: Further discussion of the Kuskokwim River Salmon Rebuilding Plan and how to implement the subsistence fishing schedule. Options for mounting a public information campaign to explain the rebuilding plan and the need to conserve chinook and chum salmon were discussed.
28 March	Frank Charles (Kuskokwim Fisherman's Coop) and Wayne Morgan (Middle River Subsistence Fisher) were elected Co-Chairs of the Working Group for the 2001 season. Robert Nick was appointed to the Working Group representing the Yukon-Kuskokwim Delta Federal Subsistence Regional Advisory Committee. This member seat replaces the seat vacated by the Kuskokwim United Fishermen's Marketing Association (KUFMA). Ray Collins was appointed to the Working Group representing the Western Interior Federal Subsistence Regional Advisory Committee. This member seat replaces the seat vacated by the Upriver (District W-2) Commercial fishermen's representative. There was further discussion on the Rebuilding Plan and the subsistence fishing schedule.
31 May	Charlie Brown was appointed to the Working Group representing Commercial Fishermen. The Working Group reviewed and approved the cooperative appeal to conserve chinook and chum salmon. The Working Group approved the revised By-Laws that govern membership, organization, rules of conduct, and operations. There was further discussion on the Rebuilding Plan, the subsistence fishing schedule, and management options.
19 June	The Working Group heard reports from subsistence fishers and the department concerning the status of Kuskokwim River salmon runs. Most fishers in the Lower Kuskokwim River characterize their subsistence harvests as being very good or normal. Most fishers report being able to meet their subsistence needs for salmon under the subsistence fishing schedule. The chinook and chum runs appear to be poor but significantly stronger than the 2000 runs. Dept. recommendation: Continue 4-day-per-week subsistence fishing schedule through June 29. Working Group recommendation: Accepted department's recommendation. Actual outcome: Subsistence fishing schedule remained at 4-day-per-week through June 29.

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Table 4. (2 of 7)

Date	Comment
26 June	The Working Group heard reports from subsistence fishers and the department concerning the status of Kuskokwim River salmon runs. Most fishers in the Lower Kuskokwim River characterize their subsistence harvests as being very good or normal. Most fishers report being able to meet their subsistence needs for salmon under the subsistence fishing schedule. Many subsistence fishers along the middle and upper Kuskokwim River are pleased with the numbers and quality of salmon present as the runs build in strength. The chinook and chum runs continue to be below average but significantly stronger than the 2000 runs. Dept. recommendation: Continue 4-day-per-week subsistence fishing schedule through July 10. Working Group recommendation: Accepted department's recommendation. Actual outcome: Subsistence fishing schedule remained at 4-day-per-week through July 10.
9 July	The Working Group heard reports from subsistence fishers and the department concerning the status of Kuskokwim River salmon runs. Most fishers report being able to meet their subsistence needs for salmon under the subsistence fishing schedule. The chinook salmon run appears to be stronger than in 1999 and 2000 at all escapement projects except the George River. The chum salmon escapements into the Kogrukluk and George Rivers are poor. Dept. recommendation: Gillnet gear in the subsistence salmon fishery be restricted to 7.5 inches or greater mesh size to conserve chum salmon and that the George River be closed to subsistence fishing. Working Group recommendation: Subsistence fishing time be reduced in District W-1 from 4 days per week to 2 days per week, that subsistence fishing time from Bogus Creek to Chuathbaluk be reduced from 4 days per week to 3 days per week, and that the George River be closed to subsistence salmon fishing. Actual outcome: Subsistence fishing time was reduced in District W-1 from 4 days per week to 2 days per week and that subsistence fishing time from Bogus Creek to Chuathbaluk was reduced from 4 days per week to 3 days per week from July 11 through July 25. The George River drainage was closed to subsistence fishing for chinook and chum salmon through August 7.

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Table 4. (3 of 7)

Date	Comment
23 July	Executive session: The Working Group heard reports from subsistence fishers and the department concerning the status of Kuskokwim River salmon runs. All indicators of chinook and chum salmon run strength show the run to be below average in size but large enough to allow subsistence harvest. Most subsistence fishers have achieved their chinook, sockeye, and chum salmon harvest goals. Dept. recommendation: Subsistence fishing be allowed for 4 days per week in the entire Kuskokwim River drainage except the George River through July 31. Working Group recommendation: Accepted department's recommendation. Actual outcome: Subsistence fishing was allowed for 4 days per week in the entire Kuskokwim River drainage through July 31. The George River remained closed to subsistence chinook and chum salmon fishing through August 7.
27 July	The Working Group heard reports from subsistence fishers and the department concerning the status of Kuskokwim River salmon runs. Most subsistence fishers report that they were able to meet their harvest goals for chinook and sockeye salmon. Overall, chinook and chum salmon escapement levels are judged to be adequate or very near adequate in all but the George River. With only 3 percent of the run past Bethel, it is too early to accurately assess the strength of the coho salmon run. Dept. recommendation: Meet again at noon on July 30 to reassess salmon run strength. Working Group recommendation: Meet again at noon on July 30. Actual outcome: Working Group met again on July 30.
30 July	Coho run strength appears to be slightly above average for this date. However, coho salmon escapement during the parent year (1997) was extremely poor, which warrants a conservative management approach during the early part of the season. Dept. Recommendation: Meet again at noon on August 1 to reassess salmon run strength. Working Group recommendation: Meet again at noon on August 1. Actual outcome: Working Group met again on August 1.

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Table 4. (4 of 7)

Date	Comment
1 August	Coho salmon run strength appears to be slightly above average based on run assessment data. Subsistence fishers report strong catches of coho in the lower and middle Kuskokwim River. Dept. recommendation: Four-hour commercial fishing period in Subdistrict W-1B (below Bethel) on August 3 from 1:00 PM to 5:00 PM. Working Group recommendation: Accepted department's recommendation. Actual outcome: Four-hour period in District W-B (below Bethel) on August 3 from 1:00 PM to 5:00 PM.
5 August	Coho salmon run strength continues to appear above average based on run assessment data. Subsistence fishers report adequate catches of coho in the lower and middle Kuskokwim River. Dept. recommendation: Four-hour commercial fishing period in Subdistrict W-1A (above Bethel) on August 6 from 1:00 PM to 5:00 PM Working Group recommendation: Accepted department's recommendation. Actual outcome: Four-hour commercial fishing period in Subdistrict W-1A (above Bethel) on August 6 from 1:00 PM to 5:00 PM
7 August	All indicators of coho salmon run strength continue show the coho run to be average to above average. This season's conservative management appears to be providing for passage of coho salmon adequate for escapement and subsistence needs. Dept. recommendation: Six-hour commercial fishing period in the entire District W-1 on August 8 from 1:00 PM to 7:00 PM Working Group recommendation: Accepted department's recommendation Actual outcome: Six-hour period in District W-1 on August 8 from 1:00 PM to 7:00 PM

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Table 4. (5 of 7)

Date	Comment
10 August	All indicators of coho salmon run strength continue show the coho run to be average to above average. Passage of coho salmon at escapement projects is adequate for this date. Most subsistence fishers report that their coho salmon catches are adequate. Dept. recommendation: Six-hour commercial fishing period in Subdistrict W-1A on August 11 from 1:00 PM to 7:00 PM and a six-hour commercial fishing period in Subdistrict W-1B on August 13 from 1:00 PM to 7:00 PM and the Working Group meet again at noon on August 15. Working Group recommendation: Six-hour commercial fishing period in Subdistrict W-1A on August 11 from 1:00 PM to 7:00 PM and the Working Group meet again at noon on August 12. Actual outcome: Six-hour period in District W-1A on August 11 from 1:00 PM to 7:00 PM and met again at noon on 12 August.
12 August	All indicators of coho salmon run strength continue to show the coho run strength to be average to above average. Passage of coho salmon at escapement projects is adequate for this date. Most subsistence fishers report that their coho salmon catches are adequate. Dept. recommendation: Six-hour or four-hour commercial fishing period in Subdistrict W-1B on August 13 starting at 1:00 PM Motion for a six-hour commercial fishing period in Subdistrict W-1B on August 13 failed. Working Group recommendation: Four-hour commercial fishing period in District W-1B on August 13 from 1:00 PM to 5:00 PM. Actual outcome: Four-hour commercial fishing period in District W-1B on August 13 from 1:00 PM to 5:00 PM.
14 August	All indicators of coho salmon run strength continue to show the coho run strength to be average to above average. Passage of coho salmon at escapement projects is adequate for this date. Most subsistence fishers report that their coho salmon catches are adequate. This season's conservative management appears to be providing for passage of coho salmon adequate for escapement and subsistence needs. Dept. recommendation: Six-hour commercial fishing period in District W-1 (entire) on August 15 from 1:00 PM to 7:00 PM. Working Group recommendation: Accepted department's recommendation. Actual outcome: Six-hour period in District W-1 (entire) on August 15 from 1:00 PM to 7:00 PM.

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Table 4. (6 of 7)

Date	Comment
16 August	The Working Group heard reports from subsistence fishers and the department on the status of the Kuskokwim River salmon runs. Most subsistence fishers report that their coho salmon catches are adequate. Coho salmon run strength appears to be adequate to provide for escapement and subsistence needs and further commercial fishing. This season's conservative management appears to be providing for passage of coho salmon adequate for escapement and subsistence needs. Dept. recommendation: Two six-hour commercial fishing periods in District W-1 (entire) on August 17 and August 20 from 1:00 PM to 7:00 PM and the Working Group meet again at noon on August 22. Working Group recommendation: Two six-hour commercial fishing periods in District W-1 (entire) on August 17 and August 20 from 1:00 PM to 7:00 PM and the Working Group meet again at noon on August 21. Actual outcome: Two six-hour commercial fishing periods in District W-1 (entire) on August 17 and August 20 from 1:00 PM to 7:00 PM and the Working Group met again at noon on August 21.
21 August	The Working Group heard reports from subsistence fishers and the department on the status of the Kuskokwim River salmon runs. Coho salmon run strength appears to be adequate to provide for escapement and subsistence needs and further commercial fishing. The amount of subsistence fishing opportunity being provided appears to be adequate. Dept. recommendation: Six-hour commercial fishing period in District W-1 (entire) on August 22 from 1:00 PM to 7:00 PM. Working Group recommendation: Accepted department's recommendation. Actual outcome: Six-hour commercial fishing period in District W-1 (entire) on August 22 from 1:00 PM to 7:00 PM.

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Table 4. (7 of 7)

Date	Comment
23 August	The Working Group heard reports from subsistence fishers and the department on the status of the Kuskokwim River salmon runs. Coho salmon run strength appears to be adequate to provide for escapement and subsistence needs and further commercial fishing. This season's conservative management appears to be providing for passage of coho salmon adequate for escapement and subsistence needs. Dept. recommendation: Six-hour commercial fishing period in District W-1 (entire) on August 24 or August 25 from 1:00 PM to 7:00 PM and that the commercial fishery be closed for the season Working Group recommendation: Six-hour commercial fishing period in District W-1 (entire) on August 25 from 1:00 PM to 7:00 PM and that the commercial fishery be closed for the season Actual outcome: Six-hour commercial fishing period in District W-1 (entire) on August 25 from 1:00 PM to 7:00 PM. Commercial salmon fishery closed for season on August 26.
9 Sept.	End of season review of Kuskokwim River subsistence and commercial fisheries. Overall, the chinook, chum, and coho runs were below average in size. However, the chinook and chum runs were significantly larger than the runs in 2000. The commercial harvest of chinook, chum, and sockeye salmon was less than 1% of the recent 10-year average while the coho salmon harvest was 57% below average. Overall, escapement of chinook salmon was about 90% of the drainage-wide goal, chum salmon escapement was adequate, and coho salmon escapement was 80-90% of the drainage-wide goal. The Working Group heard reports on the Kuskokwim River coho mark/recapture and Holitna River salmon radio telemetry projects. Other topics discussed were limits on sportfishing and hunting guides, Phil Mundy's recommendations for strengthening the Working Group process, and the importance of marine derived nutrients to salmon production. The Working Group approved Wayne Morgan and Frank Charles to represent them at the Federal Joint Subsistence Regional Advisory Committee meeting in Anchorage on Oct 9-11.

Table 5. Salmon processors and associated data, Kuskokwim Area, 2001.

Processor	Product	District
Inlet Salmon P.O. Box 578 Bethel, AK 99559	Frozen Salmon Fresh Salmon Salmon Roe	1
Coastal Village Seafoods, Inc 711 H Street, Suite 200 Anchorage, AK 99501	Frozen salmon Fresh salmon Salmon Roe	1, 4 and 5
Woodbine Alaska Fish Co. P.O. Box 218 Egegik, AK 99579	Frozen Salmon Canned Salmon Salmon Roe	1

Table 6. Kuskokwim River commercial salmon harvest by period, 2001

						CHINOOK		SOCKEYE		COHO				CHUM	
Period	Date	Permits	Average permits	Hours	Land.	No. fish	Lbs	No. fish	Lbs	No. fish	Lbs	CPUE	Average CPUE	No. fish	Lbs
01	8/03	144	333	4	148	9	189	22	174	17,174	124,383	29.8	22.9	347	2,280
02	8/06	108	198	4	113	8	163	5	41	20,089	147,382	46.5	21.6	101	684
03	8/08	262	578	6	289	23	347	11	101	46,369	345,925	29.5	24.0	356	2,286
04	8/11	175	213	6	193	20	330	10	80	41,643	314,238	39.7	31.7	218	1,484
05	8/13	143	370	4	146	5	58	4	28	9,647	73,593	16.9	21.1	37	208
06	8/15	296	555	6	304	5	77	15	110	28,893	221,943	16.3	15.0	122	749
07	8/17	259	539	6	260	12	212	9	64	11,064	86,709	7.1	15.3	65	418
08	8/20	149	535	6	150	6	95	5	37	5,440	42,586	6.1	13.1	17	103
09	8/22	149	471	6	150	0	0	3	28	8,149	64,180	9.1	11.2	4	28
10	8/25	118	410	6	119	2	13	0	0	4,530	36,208	6.4	8.5	5	34
Total		412		54	1,875	90	1,484	84	663	194,528	1,468,306			1,291	8,408

Periods 1 and 5 were W-1B only
Periods 2 and 4 were W-1A only

Table 7. Commercial harvest by subdistrict, Kuskokwim River District W-1, 2001.

		Effort		Commercial Harvest (No. of fish)							
				Chinook		Sockeye		Chum		Coho	
Date	Period	W 1-B	W 1-A	W 1-B	W 1-A	W 1-B	W 1-A	W 1-B	W 1-A	W 1-B	W 1-A
3-Aug	1	144		9		22		347		17,174	
6-Aug	2		108		8		5		101		20,089
8-Aug	3	135	127	12	11	7	4	124	232	26,234	20,135
11-Aug	4		175		20		10		218		41,643
13-Aug	5	143		5		4		37		9,647	
15-Aug	6	120	177	1	4	8	7	50	72	6,678	22,215
17-Aug	7	97	162	5	7	4	5	31	34	2,867	8,197
20-Aug	8	43	106	1	5	4	1	9	8	2,063	3,377
22-Aug	9	72	77	0	0	1	2	2	2	5,043	3,106
25-Aug	10	54	64	0	2	0	0	1	4	1,528	3,002
	Totals	**808**	**996**	33	**57**	**50**	**34**	**601**	**671**	**71,234**	**121,764**

Subdistrict W-1B - Kuskokwim River, District W-1, below Bethel
Subdistrict W-1A - Kuskokwim River, District W-1, above Bethel

Table 8. Peak aerial survey salmon escapement estimates in Kuskokwim Area spawning tributaries by species, 2001.[a]

Location	Date	Chinook	Sockeye	Coho	Chum
KUSKOKWIM RIVER:					
Cheeneetnuk River (Swift River)	25-Jul	217	-	-	-
Fourth of July Creek (Takotna River)	26-Jul	123	-	-	497
Little Waldron (Takotna River)	26-Jul	-	-	-	-
Moore Creek (Takotna River)	26-Jul	-	-	-	-
John Reek Creek (Takotna River)	27-Jul	-	-	-	-
Unnamed Tributary (Big River)	27-Jul	16	-	-	-
Unnamed Tributary (Windy Fork)	27-Jul	26	-	-	-
Unnamed Tributary (Middle Fork)	27-Jul	55	-	-	-
Pitka Fork Mainstream	27-Jul	-	-	-	-
Sheep Creek (Pitka Fork)	27-Jul	4	-	-	-
Sullivan Creek (Pitka Fork)	27-Jul	22	-	-	-
Bear Creek (Pitka Fork)	27-Jul	175	-	-	-
Salmon River (Pitka Fork)	27-Jul	1,033	-	-	-
Big Creek (Takotna River)	27-Jul	-	-	-	-
Telaquana Lake(Stony River)	27-Jul	-	3,500	-	-
Mainstem George River	28-Jul	1,143	-	-	472
Holokuk River	28-Jul	52	-	-	275
Salmon River (Aniak)	28-Jul	598	-	-	1,227
Unnamed Tributary (Big River)	28-Jul	3	-	-	-
Unnamed Tributary (Big River)	28-Jul	21	-	-	-
Unnamed Tributary (Little Tonzona)	28-Jul	38	-	-	-
Unnamed Tributary (Upper South Fork)	28-Jul	35	-	-	-
Fish Creek (Highpower Creek)	29-Jul	-	-	-	-
Gagaryah River (Swift River)	29-Jul	143	-	-	-
Can Creek (Stony River)	29-Jul	8	-	-	2,193
Holitna River	1-Aug	4,247	175	-	3,051
Hook Creek	1-Aug	47	-	-	-
Moore Creek (Takotna River)	22-Sep	-	-	4	-
Unnamed Tributary (Big River)	22-Sep	-	-	114	-
Unnamed Tributary (Big River)	22-Sep	-	-	-	-
Unnamed Tributary (Big River)	22-Sep	-	-	-	-
Unnamed Tributary (Big River)	22-Sep	1	-	-	-
Bear Creek (Pitka Fork)	22-Sep	-	-	9	-
Nixon Fork (Takotna River)	23-Sep	-	-	6	-
Sullivan Creek (Pitka Fork)	23-Sep	-	-	2	-
Unnamed Tributary (Little Tonzona)	23-Sep	-	-	208	-
Unnamed Tributary (South Fork)	23-Sep	-	-	134	480
Unnamed Tributary (South Fork)	23-Sep	-	-	46	130
KUSKOKWIM BAY					
Middle Fork Goodnews River	3-Aug	2,799	4,623	-	6,945
Middle Fork Goodnews River Lake	3-Aug	-	7,760	-	-
North Fork Goodnews River and Lake	3-Aug	3,561	29,340	-	7,330
Kanektok River	4-Aug	6,483	38,610	-	11,440
Kanuktik Creek (Kanektok River)	4-Aug	90	350	-	100

a Peak aerial salmon escapement index count. Aerial index counts do not represent total escapement, but reflect annual spawner abundance trends when using standard survey methods under acceptable conditions.

"-" =species not present during survey or surveyed previously

Table 9. Daily and cumulative estimates of fish passage at the Aniak River sonar site, 2001

Date	Left Bank	Right Bank	Daily Count	Cumulative Count	Percent Passage
7/12	1,654	6,522	8,175	8,175	4%
7/13	2,463	6,650	9,113	17,288	8%
7/14	4,055	10,072	14,127	31,415	14%
7/15	4,455	9,361	13,816	45,231	20%
7/16	3,578	8,688	12,266	57,497	26%
7/17	3,470	8,816	12,286	69,783	31%
7/18	4,053	10,284	14,337	84,120	38%
7/19	3,608	8,535	12,143	96,263	43%
7/20	3,439	6,680	10,119	106,383	48%
7/21	5,756	10,769	16,525	122,908	55%
7/22	5,476	9,012	14,488	137,396	62%
7/23	4,783	7,129	11,912	149,308	67%
7/24	4,083	6,485	10,568	159,876	72%
7/25	3,753	5,675	9,428	169,304	76%
7/26	3,805	4,991	8,796	178,099	80%
7/27	3,676	5,899	9,575	187,674	84%
7/28	4,081	4,677	8,758	196,432	88%
7/29	3,788	4,649	8,437	204,869	92%
7/30	3,611	3,654	7,266	212,135	95%
7/31	2,412	2,817	5,229	217,364	98%
8/1	2,169	2,698	4,867	222,231	100%
TOTAL	78,168	144,063	222,231	222,231	

Table 10. Quinhagak, District 4 commercial salmon harvest and effort by period, 2001

				Chinook		Sockeye		Chum		Pink		Coho	
Period	Date	Hours	Permits	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE
1	6/21	12	52	4,024	6.45	1,225	1.96	154	7.9				
2	6/25	12	108	3,137	2.42	3,382	2.61	1,463	1.13				
3	6/28	12	106	2,490	1.96	5,222	4.11	2,486	1.95				
4	7/2	12	86	934	0.91	6,656	6.45	2,292	2.22				
5	7/5	12	80	828	0.86	7,638	7.96	2,275	2.37				
6	7/9	6	86	432	0.84	3,317	6.43	1,794	3.48				
7	7/12	9	61	318	0.58	2,831	5.16	2,060	3.75				
8	7/16	12	48	267	0.46	1,678	2.91	1,767	3.07				
9	7/18	12	42	138	0.27	977	1.94	1,316	2.61				
10	7/23	12	25	89	0.30	380	1.27	938	3.13			41	0.14
11	8/1	12	28	34	0.10	180	0.54	278	0.83			1,005	2.99
12	8/3	12	23	20	0.07	57	0.21	94	0.34			913	3.31
13	8/6	12	31	23	0.06	62	0.17	141	0.38			1,828	4.91
14	8/10	12	28	11	0.03	58	0.17	46	0.14			2,570	7.65
15	8/13	12	31	9	0.02	37	0.10	24	0.06			3,130	8.41
16	8/15	12	31	6	0.02	28	0.08	28	0.08			3,612	9.71
17	8/18	12	37	5	0.01	34	0.08	26	0.06			3,844	8.66
18	8/20	12	7			2	0.02	1	0.01			201	2.39
19	8/22	12	24	4	0.01	28	0.10	21	0.07			955	3.32
20	8/24	12	15	6	0.03	15	0.08	5	0.03			432	2.4
Totals		231	159	12,775		33,807		17,209				18,531	

Table 9. Daily and cumulative estimates of fish passage at the Aniak River sonar site, 2001

Date	Left Bank	Right Bank	Daily Count	Cumulative Count	Percent Passage
7/12	1,654	6,522	8,175	8,175	4%
7/13	2,463	6,650	9,113	17,288	8%
7/14	4,055	10,072	14,127	31,415	14%
7/15	4,455	9,361	13,816	45,231	20%
7/16	3,578	8,688	12,266	57,497	26%
7/17	3,470	8,816	12,286	69,783	31%
7/18	4,053	10,284	14,337	84,120	38%
7/19	3,608	8,535	12,143	96,263	43%
7/20	3,439	6,680	10,119	106,383	48%
7/21	5,756	10,769	16,525	122,908	55%
7/22	5,476	9,012	14,488	137,396	62%
7/23	4,783	7,129	11,912	149,308	67%
7/24	4,083	6,485	10,568	159,876	72%
7/25	3,753	5,675	9,428	169,304	76%
7/26	3,805	4,991	8,796	178,099	80%
7/27	3,676	5,899	9,575	187,674	84%
7/28	4,081	4,677	8,758	196,432	88%
7/29	3,788	4,649	8,437	204,869	92%
7/30	3,611	3,654	7,266	212,135	95%
7/31	2,412	2,817	5,229	217,364	98%
8/1	2,169	2,698	4,867	222,231	100%
TOTAL	78,168	144,063	222,231	222,231	

Table 10. Quinhagak, District 4 commercial salmon harvest and effort by period, 2001

				Chinook		Sockeye		Chum		Pink		Coho	
Period	Date	Hours	Permits	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE
1	6/21	12	52	4,024	6.45	1,225	1.96	154	7.9				
2	6/25	12	108	3,137	2.42	3,382	2.61	1,463	1.13				
3	6/28	12	106	2,490	1.96	5,222	4.11	2,486	1.95				
4	7/2	12	86	934	0.91	6,656	6.45	2,292	2.22				
5	7/5	12	80	828	0.86	7,638	7.96	2,275	2.37				
6	7/9	6	86	432	0.84	3,317	6.43	1,794	3.48				
7	7/12	9	61	318	0.58	2,831	5.16	2,060	3.75				
8	7/16	12	48	267	0.46	1,678	2.91	1,767	3.07				
9	7/18	12	42	138	0.27	977	1.94	1,316	2.61				
10	7/23	12	25	89	0.30	380	1.27	938	3.13			41	0.14
11	8/1	12	28	34	0.10	180	0.54	278	0.83			1,005	2.99
12	8/3	12	23	20	0.07	57	0.21	94	0.34			913	3.31
13	8/6	12	31	23	0.06	62	0.17	141	0.38			1,828	4.91
14	8/10	12	28	11	0.03	58	0.17	46	0.14			2,570	7.65
15	8/13	12	31	9	0.02	37	0.10	24	0.06			3,130	8.41
16	8/15	12	31	6	0.02	28	0.08	28	0.08			3,612	9.71
17	8/18	12	37	5	0.01	34	0.08	26	0.06			3,844	8.66
18	8/20	12	7			2	0.02	1	0.01			201	2.39
19	8/22	12	24	4	0.01	28	0.10	21	0.07			955	3.32
20	8/24	12	15	6	0.03	15	0.08	5	0.03			432	2.4
Totals		231	159	12,775		33,807		17,209				18,531	

Table 11. Goodnews Bay, District 5 commercial salmon harvest and effort by period, 2001.

				Chinook		Sockeye		Chum		Pink		Coho	
Period	Date	Hours	Permits	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE	Number	CPUE
1	6/29	12	17	1,022	5.01	4,286	21.01	680	3.33				
2	7/3	12				No Commercial Harvest/No Deliveries							
3	7/6	12	26	147	0.47	6,790	21.76	925	2.96				
4	7/10	12	25	132	0.88	4,039	26.93	300	2.00				
5	7/13	12	26	60	0.26	5,014	21.43	702	3.00				
6	7/20	6	15	59	0.33	1,236	6.87	337	1.87				
7	7/23	9	18	36	0.17	1,635	7.57	341	1.58				
8	8/1	12	12	23	0.16	859	5.97	72	0.50			326	2.26
9	8/6	12	14	10	0.06	518	3.08	18	0.11			497	2.96
10	8/8	12	9	6	0.06	407	3.77	8	0.07			596	5.52
11	8/10	12	14	7	0.04	377	2.24	8	0.05			671	3.99
12	8/15	12	22	4	0.02	225	0.85	14	0.05			2,468	9.35
13	8/18	12	18	3	0.01	144	0.67	3	0.01			2,637	12.21
14	8/20	12				No Commercial Harvest/No Deliveries							
15	8/22	12	15	7	0.04	68	0.38	1	0.01			1,085	6.03
16	8/24	12	13	3	0.02	56	0.36	3	0.02			991	6.35
Totals		183	32	1,519		25,654		3,412				8,448	

Table 12. Preliminary outlook for the 2002 Kuskokwim Area commercial salmon harvest (X 1,000 fish)

Species	Management District						Kuskokwim Area Total		
	Districts 1 and 2			Distirct 4			District 5		
Chinook	0	to	1	8	to	20	1	to	3	9	to	24
Sockeye	0	to	20	20	to	60	20	to	40	40	to	120
Coho	100	to	300	15	to	50	2	to	20	117	to	370
Pink [b]	0	to	1	0	to	1	0	to	0	0	to	1
Chum	0	to	100	15	to	40	3	to	14	18	to	154
TOTAL	100	to	422	58	to	171	26	to	77	184	to	669

[a] Kuskokwim River includes Districts 1 and 2.

[b] Outlook is based on historic catches in odd years only.

Table 13. Sampling Summary for the Kuskokwim Area Subsistence Salmon Fishery, 2001.

						NUMBER OF HOUSEHOLDS			
	Total	CALENDARS		POSTCARDS		Household	Any	Harvest	Subsistence
COMMUNITY	HH'S	Mailed	Returned	Mailed	Returned	Surveys	Info.*	Data**	Fished
Kipnuk	176	15	1	175	0	0	1	1	1
Kwigillingok	95	3	0	95	0	0	0	0	0
Kongiganak	77	55	3	15	1	58	73	61	60
NORTH KUSKOKWIM BAY	348	73	4	285	1	58	74	62	61
Tuntutuliak	77	58	9	26	4	52	72	62	59
Eek	71	47	17	15	1	40	71	59	50
Kasigluk	135	15	4	135	0	1	5	4	5
Nunapitchuk	104	75	13	20	3	69	101	80	79
Atmautluak	56	38	5	10	2	45	53	47	41
Napakiak	78	47	10	18	3	59	72	68	58
Napaskiak	86	56	7	13	0	69	85	80	71
Oscarville	14	12	7	0	0	9	12	11	10
Bethel	1,721	687	84	305	35	795	847	836	344
Kwethluk	146	112	24	31	2	103	140	115	115
Akiachak	128	92	13	42	6	78	118	89	95
Akiak	65	42	6	17	5	48	61	56	51
Tuluksak	72	59	6	15	2	51	69	58	53
LOWER KUSKOKWIM RIVER	2,753	1,340	205	647	63	1,419	1,706	1,565	1,031
Lower Kalskag	62	35	12	9	1	45	60	52	41
Upper Kalskag	55	34	6	20	2	35	43	42	32
Aniak	164	102	16	21	5	127	152	134	99
Chuathbaluk	27	20	5	6	1	18	27	23	23
MIDDLE KUSKOKWIM RIVER	308	191	39	56	9	225	282	251	195
Crooked Creek	31	18	5	10	1	21	23	23	18
Red Devil	15	13	6	0	0	12	15	15	13
Sleetmute	38	28	7	4	1	31	36	34	28
Stony River	15	6	1	1	0	13	15	14	10
Lime Village	19	7	1	0	0	14	16	15	10
McGrath	125	62	0	24	9	89	105	99	43
Takotna	20	3	0	3	1	15	19	18	5
Nikolai	34	15	2	7	4	26	33	30	21
Telida	2	0	0	0	0	0	0	0	0
UPPER KUSKOKWIM RIVER	299	152	22	49	16	221	262	248	148
Quinhagak	131	87	10	31	4	82	122	101	80
Goodnews Bay	61	32	5	11	1	50	53	51	40
Platinum	16	10	0	1	0	15	15	13	9
SOUTH KUSKOKWIM BAY	208	129	15	43	5	147	190	165	129
Mekoryuk	88	88	0	88	0	0	0	0	0
Newtok	79	79	1	79	0	0	1	1	1
Nightmute	67	66	0	60	0	0	0	0	0
Toksook Bay	132	131	3	130	0	0	3	3	3
Tununak	108	108	1	108	1	0	2	2	2
Chefornak	93	93	0	93	0	0	0	0	0
BERING SEA COAST	567	565	5	558	1	0	6	6	6
KUSKOKWIM AREA TOTALS	4,483	2,450	290	1,638	95	2,070	2,520	2,297	1,570

* Includes information from all sources including fishing status derived from survey forms, calendars, postcards or in consultation with community officials.

** Includes information from households that did not harvest salmon and households which did provided harvest numbers.

Table 14. Subsistence Salmon Harvest Summary, Kuskokwim Area, 2001.

COMMUNITY	HOUSEHOLDS Total	HOUSEHOLDS Contacted	CHINOOK Reported Harvest	CHINOOK Estimated Total	CHUM Reported Harvest	CHUM Estimated Total	SOCKEYE Reported Harvest	SOCKEYE Estimated Total	COHO Reported Harvest	COHO Estimated Total
Kipnuk	176	12	1	1	2	2	4	4	74	74
Kwigillingok	95	0	0	0	0	0	0	0	0	0
Kongiganak	73	52	1,163	1,454	1,597	1,998	1,169	1,460	742	925
N. KUSKOKWIM BAY	344	64	1,164	1,455	1,599	2,000	1,173	1,464	816	999
Tuntutuliak	74	62	2,460	2,993	2,140	2,621	1,407	1,701	276	337
Eek	67	55	1,342	1,728	267	347	719	923	160	207
Kasigluk	135	18	294	588	275	550	160	320	172	344
Nunapitchuk	103	83	2,286	3,250	3,311	4,749	1,824	2,583	268	392
Atmautluak	52	45	657	740	1,201	1,350	849	958	331	369
Napakiak	75	49	2,018	2,290	1,515	1,723	1,642	1,861	565	644
Napaskiak	79	55	4,310	4,662	2,219	2,399	3,168	3,428	430	466
Oscarville	15	0	1,317	1,753	1,373	2,097	1,088	1,620	36	42
Bethel	1,739	1,258	13,056	27,209	5,429	11,319	7,539	15,709	7,180	14,949
Kwethluk	144	95	4,842	6,127	3,450	4,365	3,130	3,960	1,333	1,688
Akiachak	123	84	4,416	6,445	1,960	2,872	2,938	4,300	1,118	1,633
Akiak	59	40	2,953	3,369	1,834	2,093	1,682	1,916	498	564
Tuluksak	76	56	1,984	2,451	1,507	1,862	1,424	1,759	786	971
LOWER KUSKOKWIM	2,741	1,900	41,935	63,605	26,481	38,347	27,570	41,038	13,153	22,606
Lower Kalskag	63	42	1,899	2,181	1,149	1,316	722	824	472	539
Upper Kalskag	56	38	865	1,014	1,151	1,187	253	304	407	416
Aniak	169	148	2,013	2,524	1,585	1,982	1,773	2,223	1,528	1,906
Chuathbaluk	29	26	540	627	2,033	2,338	465	537	470	541
MIDDLE KUSKOKWIM	317	254	5,317	6,346	5,918	6,823	3,213	3,888	2,877	3,402
Crooked Creek	31	24	486	508	897	943	455	476	67	70
Red Devil	14	9	175	175	335	335	361	361	427	427
Sleetmute	34	29	423	473	293	328	838	940	403	452
Stony River	15	3	134	139	140	143	131	138	346	347
Lime Village	17	4	218	262	569	683	1,263	1,516	492	590
McGrath	113	94	312	360	179	199	203	244	333	420
Takotna	17	16	4	5	6	8	0	0	20	26
Nikolai	29	26	245	282	56	65	0	0	143	165
Telida	2	0	0	—	0	—	0	—	0	—
UPPER KUSKOKWIM	272	205	1,997	2,204	2,475	2,704	3,251	3,675	2,231	2,497
KUSKOKWIM RIVER	3,674	2,423	50,413	73,610	36,473	49,874	35,207	50,065	19,077	29,504
Quinhagak	130	84	2,170	2,923	553	747	678	914	1,128	1,525
Goodnews Bay	53	48	746	859	158	182	786	921	460	508
Platinum	17	13	28	36	34	44	41	53	84	108
S. KUSKOKWIM BAY	200	145	2,944	3,818	745	973	1,505	1,888	1,672	2,141
Mekoryuk	88	19	0		0		0		0	
Newtok	79	12	12	12	36	36	0		0	
Nightmute	67	7	0		0		0		0	
Toksook Bay	132	12	130	130	234	234	12	12	16	16
Tununak	108	9	0		0		0		25	25
Chefornak	93	0	0	—	0	—		—	0	—
BERING SEA COAST	567	59	142	142	270	270	12	12	41	41
KUSKOKWIM TOTALS	4,441	2,627	53,499	77,570	37,488	51,117	36,724	51,965	20,790	31,686

NOTE: If fewer than 30 households in a community or less than 50% of households in a community stratum were contacted, then reported harvest is used for estimated harvest. Data includes salmon retained for subsistence use from commercial catch. Blanks indicate that no estimate is available

Table 15. Gear Types Reported Used for Subsistence Salmon Fishing, Kuskokwim Area, 2001.

COMMUNITY	Number of Households Reporting Type of Subsistence Fishing Gear Used: Set Gillnet	Drift Gillnet	Fish Wheel	Rod and Reel	Seine	Spear
Kongiganak	2	44	0	0	0	0
NORTH KUSKOKWIM BAY	2	44	0	0	0	0
Tuntutuliak	1	36	0	1	0	0
Eek	8	19	0	5	0	0
Kasigluk	0	1	0	0	0	0
Nunapitchuk	4	41	0	0	0	0
Atmautluak	3	30	0	0	0	0
Napakiak	17	30	0	0	0	0
Napaskiak	21	47	0	2	0	0
	3	7	0	0	0	0
Bethel	34	249	0	53	0	0
Kwethluk	32	67	0	17	0	0
Akiachak	22	47	0	2	0	0
Akiak	22	32	0	2	0	0
Tuluksak	11	32	0	14	0	0
LOWER KUSKOKWIM RIVER	178	638	0	96	0	0
Lower Kalskag	12	23	0	1	0	0
Upper Kalskag	2	19	0	1	0	0
Aniak	15	50	0	44	0	0
Chuathbaluk	3	14	0	5	0	0
MIDDLE KUSKOKWIM RIVER	32	106	0	51	0	0
Crooked Creek	4	16	0	4	0	0
Red Devil	6	2	0	4	0	0
Sleetmute	7	18	0	3	0	0
Stony River	7	4	0	2	0	0
Lime Village	7	0	0	4	0	0
McGrath	20	10	0	16	0	0
Takotna	0	0	0	4	0	0
Nikolai	7	1	0	11	0	0
UPPER KUSKOKWIM RIVER	58	51	0	48	0	0
Quinhagak	9	36	0	10	0	0
Goodnews Bay	11	20	0	9	1	0
Platinum	5	2	0	4	0	0
SOUTH KUSKOKWIM BAY	25	58	0	23	1	0
Tununak	0	1	0	0	0	0
BERING SEA COAST	0	1	0	0	0	0
KUSKOKWIM AREA TOTALS	295	898	0	218	1	0

Note: Data on households that subsistence fished is based upon house to house surveys, returned returned postcards or calendars. Households using multiple gear types are listed for each gear type reported. Communities where gear type information was not provided are not listed.

Table 16. Salmon Reported Retained From Commercial Catches for Subsistence use in the Kuskokwim Area, 2001.

COMMUNITY	Number of Households: Reported Commercial Salmon Fishing	Number of Households: Retained Commercial Caught Salmon For Subsistence	Number of Salmon Retained From Commercial Catch For Subsistence Use: Chinook	Chum	Sockeye	Coho
Kongiganak	19	3	5	10	6	7
N. KUSKOKWIM BAY	19	3	5	10	6	7
Tuntutuliak	17	4	20	0	12	25
Eek	19	1	5	0	0	6
Nunapitchuk	24	1	2	2	2	0
Atmautluak	18	2	0	0	0	12
Napakiak	15	2	2	2	2	22
Napaskiak	17	1	0	0	0	8
Oscarville	6	1	0	0	0	1
Bethel *	1	1	1	0	0	1
Kwethluk	35	4	0	30	1	10
Akiachak	47	4	2	5	6	27
Akiak	15	4	10	0	3	5
Tuluksak	17	3	10	0	2	1
LOWER KUSKOKWIM	231	28	52	39	28	118
Upper Kalskag	2	0	0	0	0	0
Aniak	2	0	0	0	0	0
Chuathbaluk	1	0	0	0	0	0
MIDDLE KUSKOKWIM	5	0	0	0	0	0
Crooked Creek	0	0	0	0	0	0
Red Devil	0	0	0	0	0	0
Sleetmute	0	0	0	0	0	0
Stony River	0	0	0	0	0	0
Lime Village	0	0	0	0	0	0
McGrath	0	0	0	0	0	0
Takotna	0	0	0	0	0	0
Nikolai	0	0	0	0	0	0
UPPER KUSKOKWIM	0	0	0	0	0	0
Quinhagak	37	7	17	17	15	95
Goodnews Bay	19	6	5	4	16	7
Platinum	6	1	2	0	0	0
S. KUSKOKWIM BAY	62	14	24	21	31	102
TOTAL	317	45	81	70	65	227

NOTE: Data are based only upon surveyed households without expansion to the community as a whole. Communities that are not lisited were not surveyed in person.

* Only Bethel households that reported retaining fish from commercial fishing activities were identified as commercial fishing.

Table 17. Quality of Subsistence Salmon Fishing, Kuskokwim Area, 2001.

COMMUNITY	Number of Households Responding	Percent of Households Reporting Quality of Subsistence Fishing: CHINOOK Very Good or Average	CHINOOK Poor	CHUM Very Good or Average	CHUM Poor	SOCKEYE Very Good or Average	SOCKEYE Poor	COHO Very Good or Average	COHO Poor
Kongiganak	40	58	42	74	26	76	24	86	14
N. KUSKOKWIM BAY	40	58	42	74	26	76	24	86	14
Tuntutuliak	31	81	19	61	39	89	11	70	30
Eek	21	81	19	80	20	93	7	75	25
Kasigluk	1	100	0	100	0	100	0	100	0
Nunapitchuk	43	72	28	78	23	75	25	88	12
Atmautluak	24	63	37	54	46	77	23	67	33
Napakiak	36	92	8	79	21	85	15	83	17
Napaskiak	47	89	11	58	42	87	13	68	32
Oscarville	7	71	29	80	20	80	20	67	33
Bethel	241	78	22	75	25	91	9	93	7
Kwethluk	73	81	19	73	27	85	15	85	15
Akiachak	53	91	9	69	31	92	8	93	7
Akiak	34	79	21	52	48	86	14	83	17
Tuluksak	32	59	41	67	33	80	20	64	36
LOWER KUSKOKWIM	643	79	21	70	30	87	13	86	14
Lower Kalskag	25	92	8	80	20	71	29	75	25
Upper Kalskag	16	88	12	75	25	69	31	67	33
Aniak	63	68	32	45	55	76	24	89	11
Chuathbaluk	12	67	33	82	18	82	18	90	10
MIDDLE KUSKOKWIM	116	76	24	63	37	75	25	85	15
Crooked Creek	13	31	69	71	29	85	15	75	25
Red Devil	5	60	40	50	50	100	0	80	20
Sleetmute	18	72	28	60	40	89	11	100	0
Stony River	4	75	25	67	33	100	0	83	17
Lime Village	7	14	86	67	33	50	50	88	12
McGrath	25	32	68	17	83	64	36	50	50
Takotna	1	0	100	0	100	0	0	100	0
Nikolai	13	85	15	100	0	0	0	67	33
UPPER KUSKOKWIM	86	50	50	53	47	80	20	78	22
KUSKOKWIM RIVER	885	75	25	68	32	84	16	85	15
Quinhagak	39	85	15	71	29	83	17	87	13
Goodnews Bay	24	83	17	58	42	90	10	82	18
Platinum	8	63	37	75	25	86	14	67	33
S. KUSKOKWIM BAY	71	82	18	67	33	86	14	82	18
Tununak	1	0	0	0	0	0	0	100	0
BERING SEA COAST	1	0	0	0	0	0	0	100	0
KUSKOKWIM AREA	957	76	24	68	32	84	16	85	15

Data are reported from households that were surveyed in person or returned postcards surveys. There were no responses to this question on the survey postcards from Kipnuk, Kwigillingok, Mekoryuk, Newtok, Nightmute, Toksook Bay and Chefornak.

Table 18. Kuskokwim area Pacific herring proportion of biomass by age class, 2001.

District	Age (years) 2	3	4	5	6	7	8	9	10	11	12	13+	Total weight (st)
Commercial catch[a]													
Security Cove				0.3	0.9	4.0	32.4	18.3	26.7	12.0	3.5	2.0	1,024
Goodnews Bay				0.9	3.9	7.2	21.3	9.4	30.0	22.4	3.0	1.8	45
Cape Avinof				0.5	1.9	5.2	35.3	16.1	22.6	12.7	5.3	0.3	231
Nelson Island				0.1	0.0	1.9	19.8	20.3	29.5	21.0	6.8	0.6	678
Nunivak Island													-
All Districts				0.3	0.8	3.5	28.1	18.5	27.2	15.4	4.8	1.3	1,978
Escapement[b]													
Security Cove													
Goodnews Bay													
Cape Avinof													
Nelson Island													
Nunivak Island													
All Districts	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
Total Run													
Security Cove[c]		0.1	16.8	21.8	4.6	5.0	17.5	10.2	12.3	8.7	2.3	0.9	5,206
Goodnews Bay		0.1	12.0	15.9	4.7	5.5	17.1	13.4	15.6	11.6	3.0	1.0	5,755
Cape Avinof		0.1	20.6	24.6	6.0	7.4	16.3	9.0	9.9	4.4	1.7	0.0	3,486
Nelson Island		0.1	8.1	17.5	5.5	6.2	22.9	10.6	16.2	9.4	2.7	0.8	6,057
Nunivak Island[d]		0.1	8.1	17.5	5.5	6.2	22.9	10.6	16.2	9.4	2.7	0.8	5,657
All Districts	0.0	0.1	12.3	18.9	5.2	6.0	19.7	10.9	14.4	9.1	2.6	0.8	26,161

a Commercial drift gill net

b ADF&G variable mesh gill net

c Security Cove and Goodnews Bay VMG data combined to apportion Security Cove total run

d Nelson Island VMG data used to apportion Nunivak Island total run

Table 19. Kuskokwim area Pacific herring age frequency by district, 2001.

District	Age (years)											Total weight (st)
	2	3	4	5	6	7	8	9	10	11	12	13+	
Commercial catch[a]													
Security Cove				0.5	1.4	4.6	34.4	18.3	25.4	10.7	3.0	1.6	1,024
Goodnews Bay				1.5	5.5	8.5	23.5	9.5	28.0	19.5	2.5	1.5	45
Cape Avinof				0.8	2.5	6.0	38.6	16.0	20.8	10.8	4.3	0.3	231
Nelson Island				0.3	0.0	2.3	22.1	21.3	28.5	19.0	5.9	0.5	678
Nunivak Island													-
All Districts		0.0	0.0	0.5	1.1	4.1	30.4	18.9	26.0	13.8	4.1	1.1	1,978
Total Run[b]													
Security Cove		0.1	35.6	37.4	4.1	3.2	11.1	2.5	3.3	1.8	0.6	0.3	5,206
Goodnews Bay		0.2	23.3	22.3	5.3	5.0	13.9	9.6	10.6	7.5	1.8	0.6	5,755
Cape Avinof		0.2	32.3	29.6	5.8	6.0	11.7	5.6	5.6	2.3	0.8	0.0	3,486
Nelson Island		0.2	15.2	25.3	6.2	6.0	19.4	8.1	11.3	6.2	1.6	0.5	6,057
Nunivak Island													
All Districts		0.2	25.6	28.3	5.4	5.0	14.4	6.7	8.1	4.8	1.3	0.4	20,504

a Commercial drift gill net

b ADF&G variable mesh gill net

Table 20. Summary of Pacific herring commercial harvest by fishing period for Kuskokwim Area fishing districts, 2001

District	Period	Date	Time	Total hours	Harvest[1] (st)
Security Cove	1	17-May	0030-0230	2	88.7
	2	17-May	1430-2030	6	293.7
	3	18-May	1600-2200	6	379.6
	4	19-May	1630-2000	3.5	262.5
			Total	17.5	1024.5
Goodnews Bay	1	21-May	1700-2200	5	15
	2	22-May	0500-1000	5	11.2
	3	22-May	1700-2300	6	19.2
			Total	16	45.4
Cape Avinof	1	4-Jun	0800-1300	5	12.1
	2	4-Jun	2000-0200	6	64.4
	3	5-Jun	0900-1500	6	18.1
	4	5-Jun	2100-0300	6	2.5
	5	6-Jun	0900-1700	8	24.1
	6	6-Jun	2100-0500	8	20.2
	7	7-Jun	1000-1800	8	1.5
	8	7-Jun	2200-0600	8	42.1
	9	8-Jun	1100-1900	8	46
			Total	63	231
Nelson Island	1	29-May	0630-0830	2	0
	2	29-May	1630-2030	4	4.2
	3	30-May	1400-2000	6	177.6
	4	31-May	1700-2300	6	253.2
	5	1-Jun	1700-2030	3.5	197.2
	6	8-Jun	0001-0500	5	46.1
			Total	26.5	678.3
Nunivak Island (Purse Seine)	NO COMMERCIAL OPENINGS				

[1] Report includes estimated hopper weights for actual de-watered weights as reported by processor on fish tickets and in final catch reports. Hopper weight was estimated by adding 10%.

Table 21. Projections of Pacific herring spawning biomass and harvest for commercial fishing districts in the Kuskokwim Area, 2001.

	2001 Projection[a]			
District	Biomass (st)	Threshold (st)[b]	Harvest (st)	Exploitation Rate (%)
Security Cove	4,572	1,200	905	20
Goodnews Bay	5,755	1,200	1,151	20
Cape Avinof	3,486	500	523	15
Nelson Island	3,971	3,000	594	15[c]
Nunivak Island	3,411	1,500	682	20[d]
Total	21,195		3,855	

a Preseason projection. Projection may be adjusted based on inseason biomass estimates.

b Threshold biomass needed to allow a commercial fishery from 5 AAC 27.060 Bering Sea Herring Fishery Management Plan.

c Nelson Island exploitation rate is 20% of projected biomass minus 200 st for subsistence harvest.

d Nunivak Island exploitation rate is 15% of projected biomass when inseason aerial survey estimate isn't available.

FIGURES

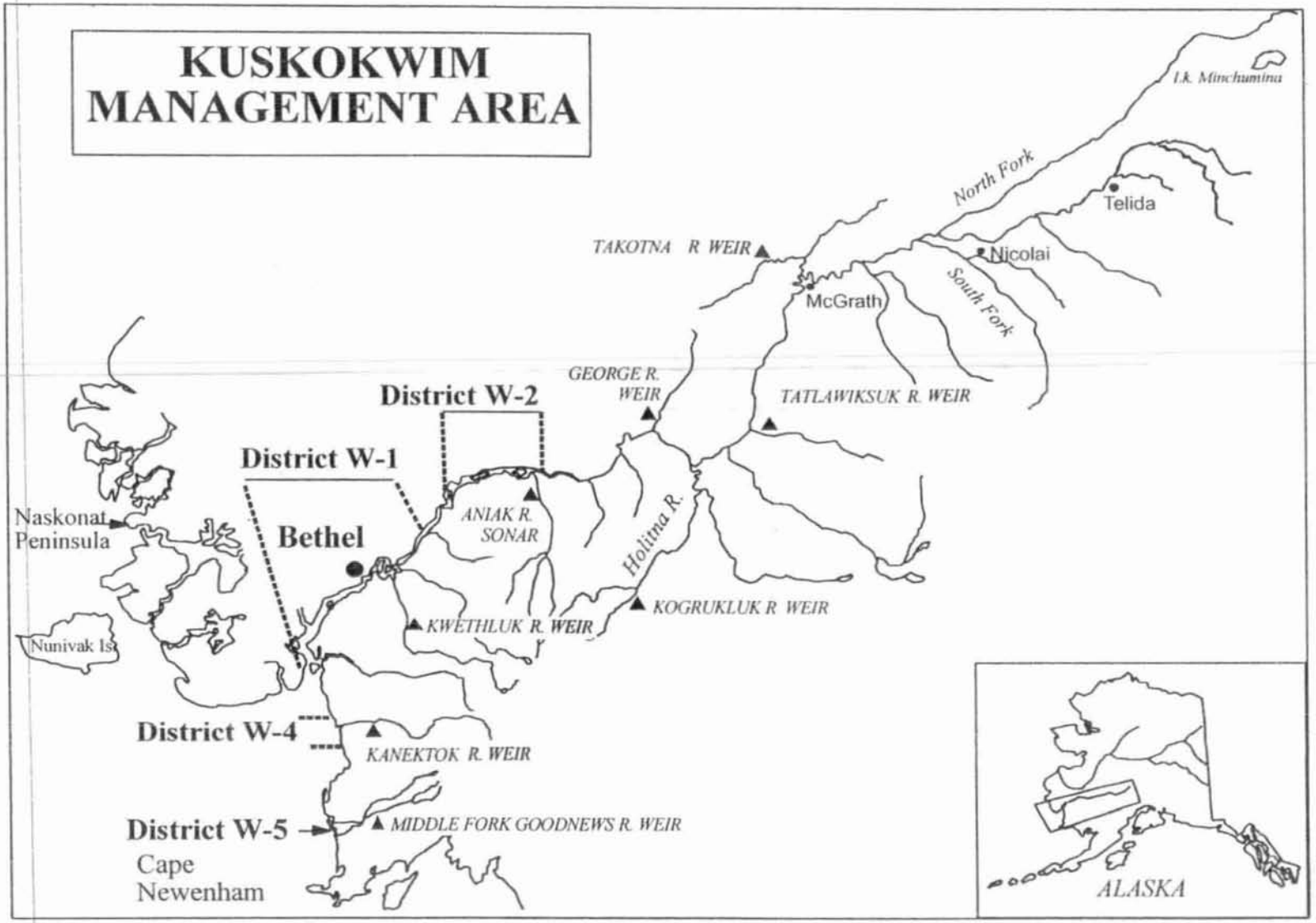
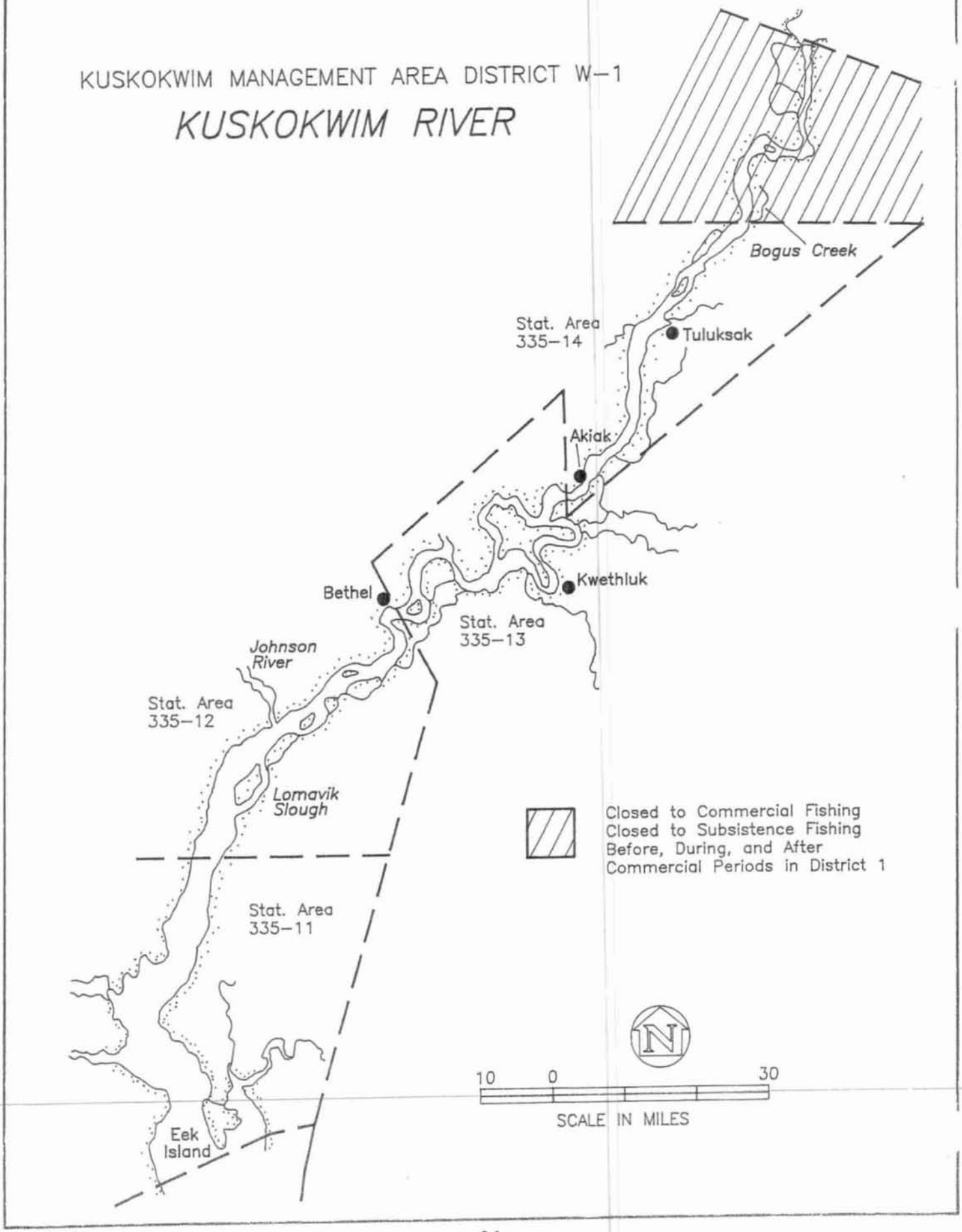
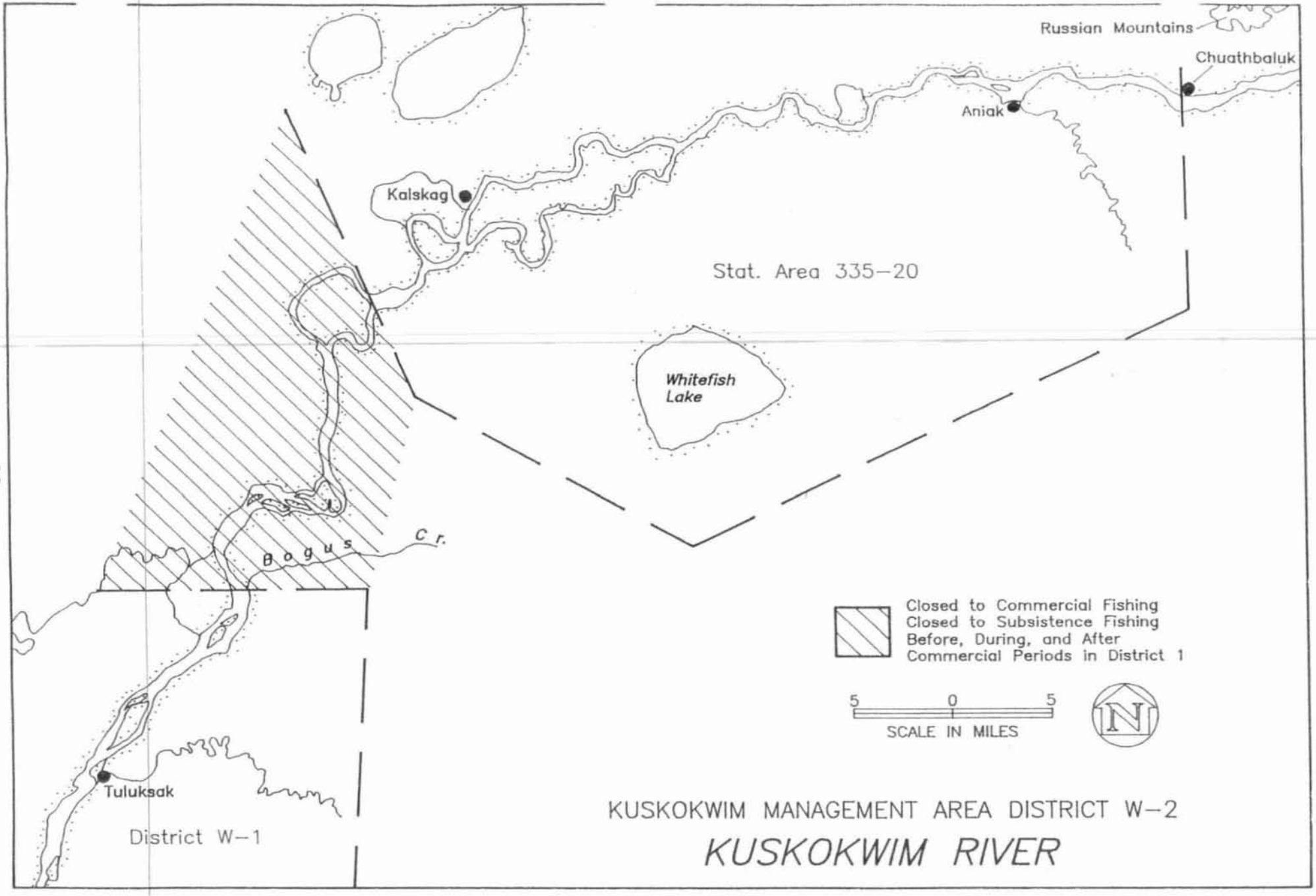


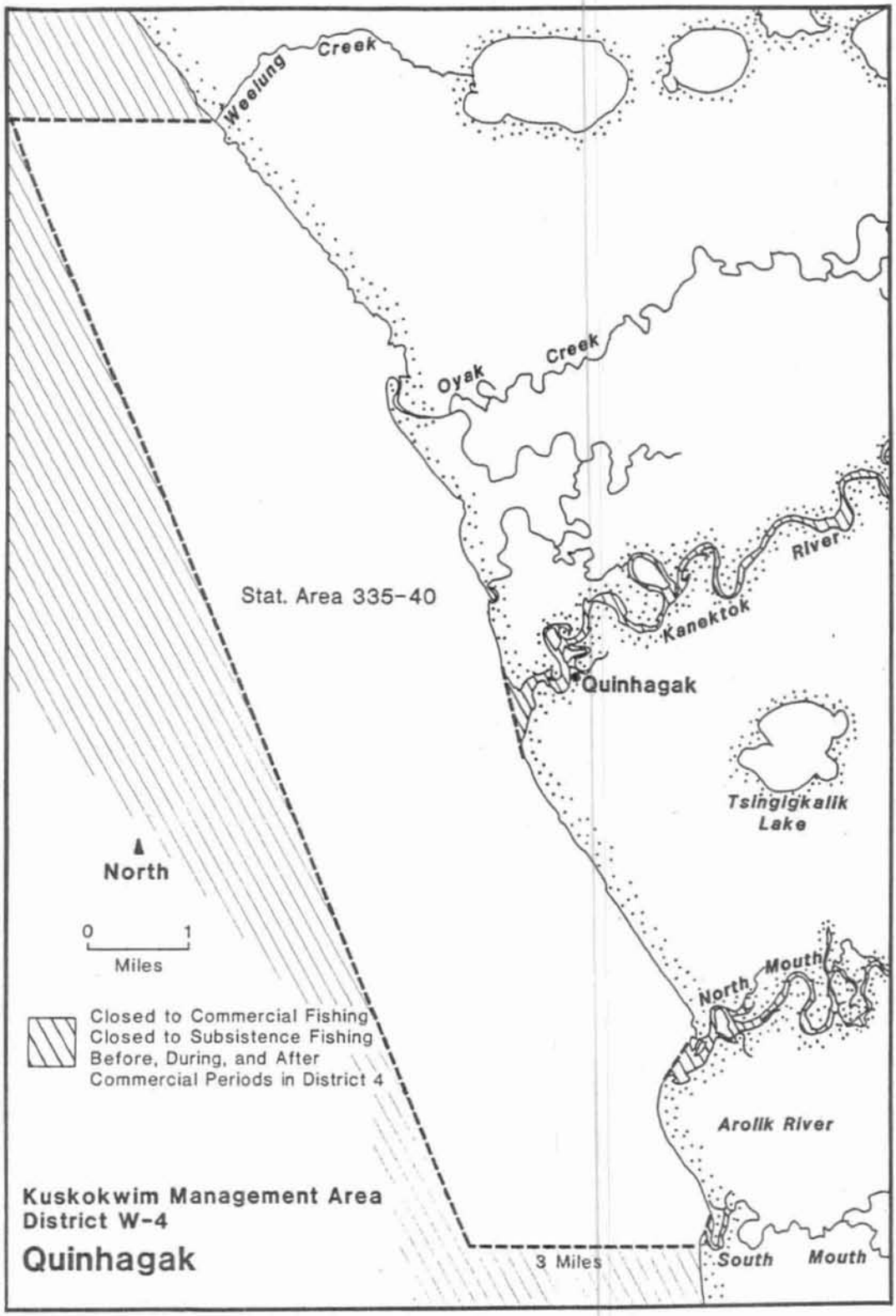
Figure 1. Kuskokwim Area map showing salmon management districts and escapement monitoring projects.

KUSKOKWIM MANAGEMENT AREA DISTRICT W–1

KUSKOKWIM RIVER




Russian Mountains
Chuathbaluk
Aniak
Kalskag
Stat. Area 335–20
Whitefish Lake
Bogus Cr.
Tuluksak
District W–1
Closed to Commercial Fishing
Closed to Subsistence Fishing
Before, During, and After
Commercial Periods in District 1
5 0 5
SCALE IN MILES
N
KUSKOKWIM MANAGEMENT AREA DISTRICT W–2
KUSKOKWIM RIVER


Weelung Creek
Oyak Creek
Kanektok River
Quinhagak
Tsingigkalik Lake
Stat. Area 335-40
North
0 1
Miles
Closed to Commercial Fishing
Closed to Subsistence Fishing
Before, During, and After
Commercial Periods in District 4
North Mouth
Arolik River
South Mouth
3 Miles
Kuskokwim Management Area
District W-4
Quinhagak

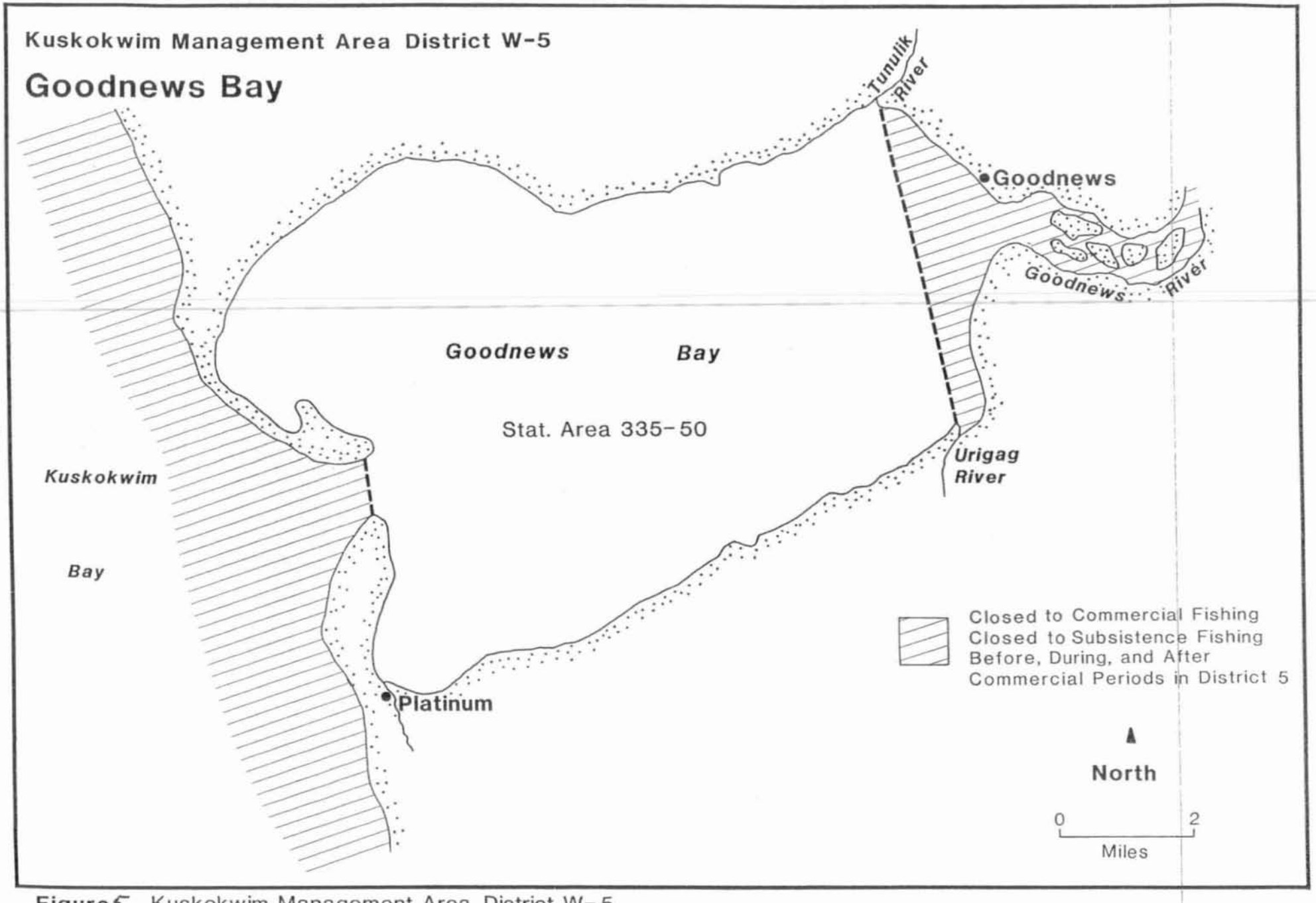


Figure 5. Kuskokwim Management Area, District W-5

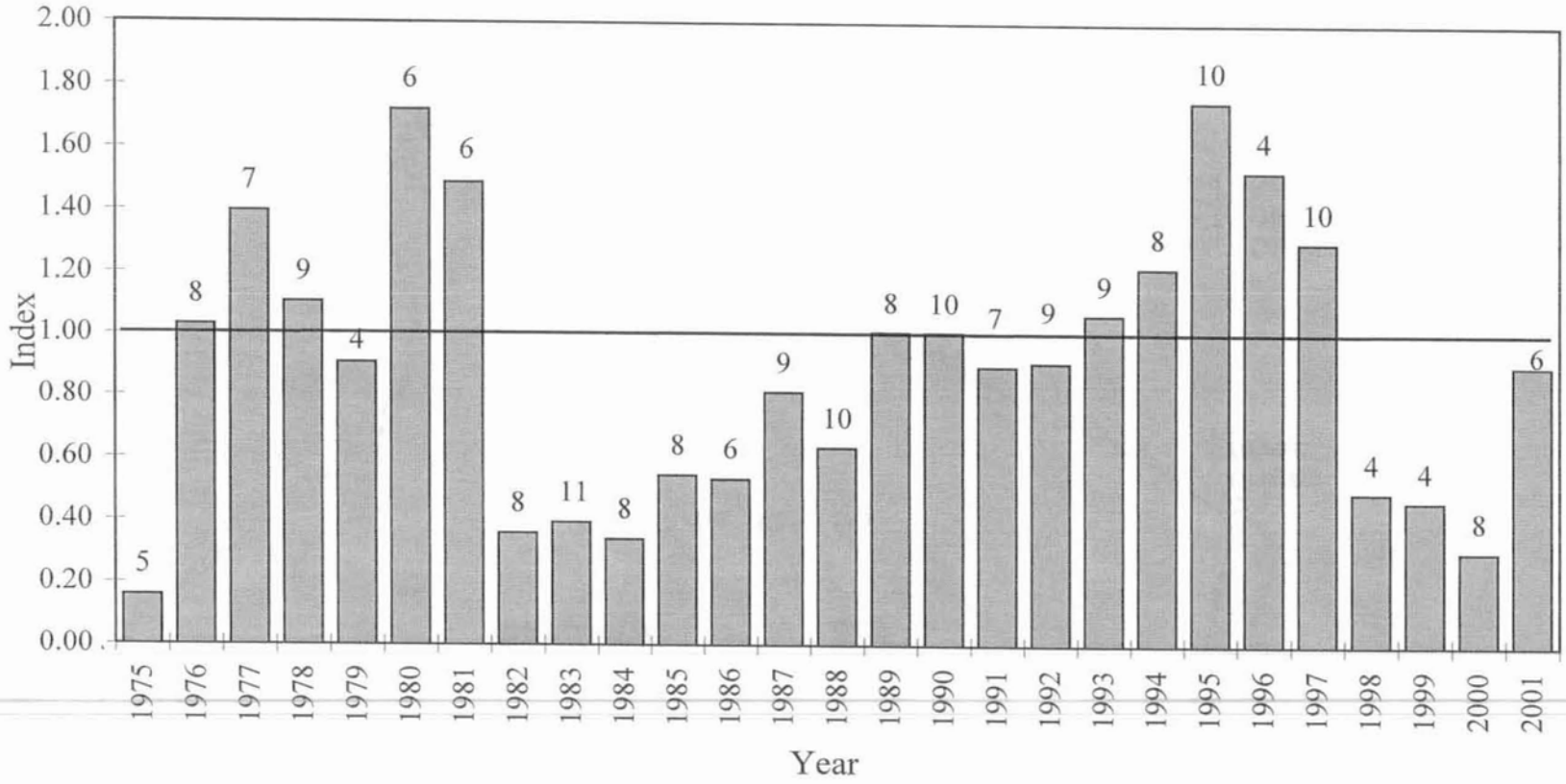


Figure 6. The Kuskokwim River chinook salmon escapement index represents the relative escapement of 13 possible index streams for which adequate data is available. Numbers on top of bars indicate the number of index streams represented. The index scale represents the escapement relative to the proportion of the escapement goal, if a goal has been established, otherwise it represents the proportion of the median historical escapement. Generally, an index values greater than or equal to 1.00 mean that the escapement goal or historical median escapement was achieved in approximately half or more of the streams. Index values less than 1.00 mean that the escapement goal or historical median escapement was not achieved in over half the streams.

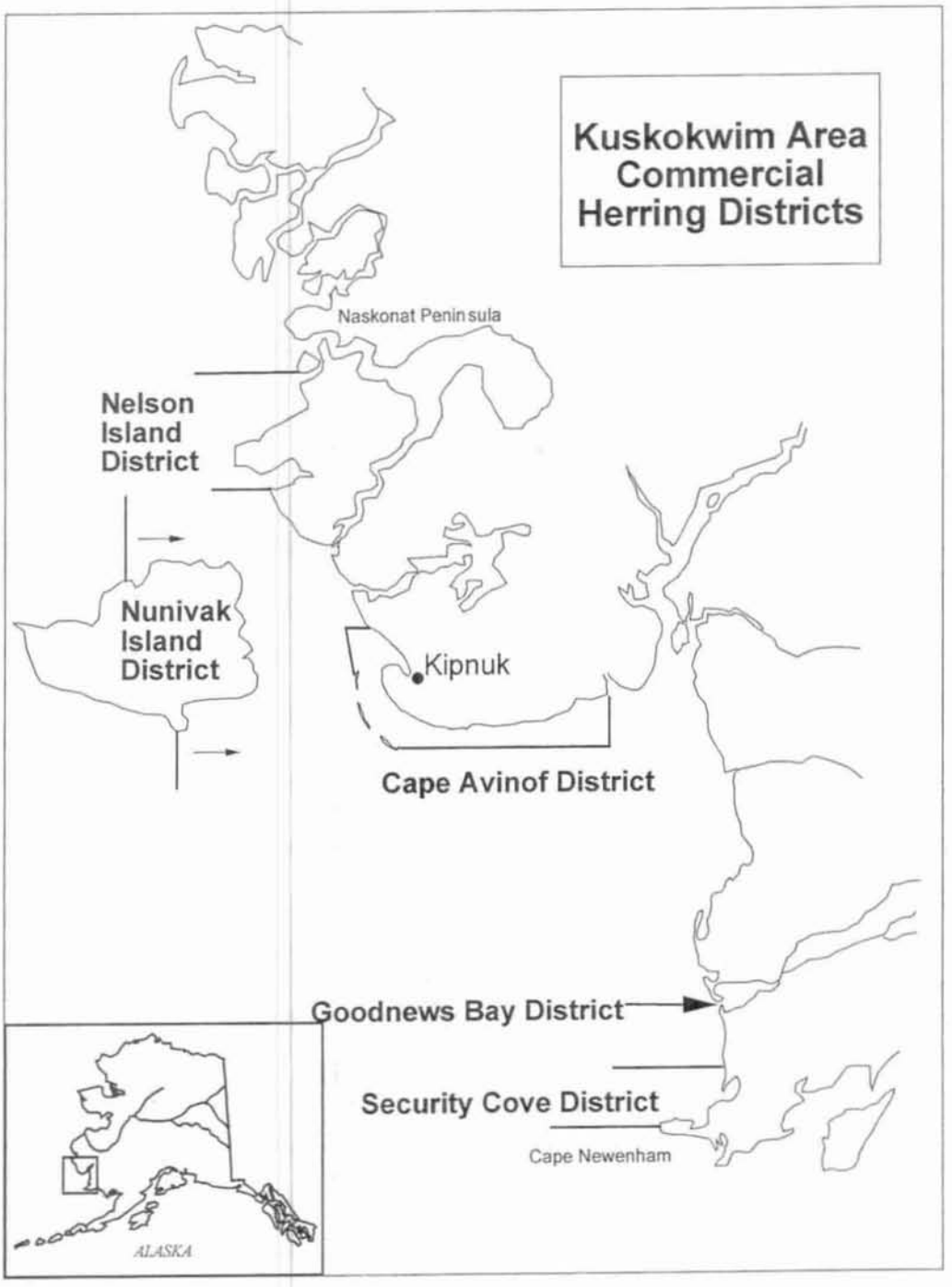


Figure 7 Kuskokwim Bay Area commercial herring fishing districts.

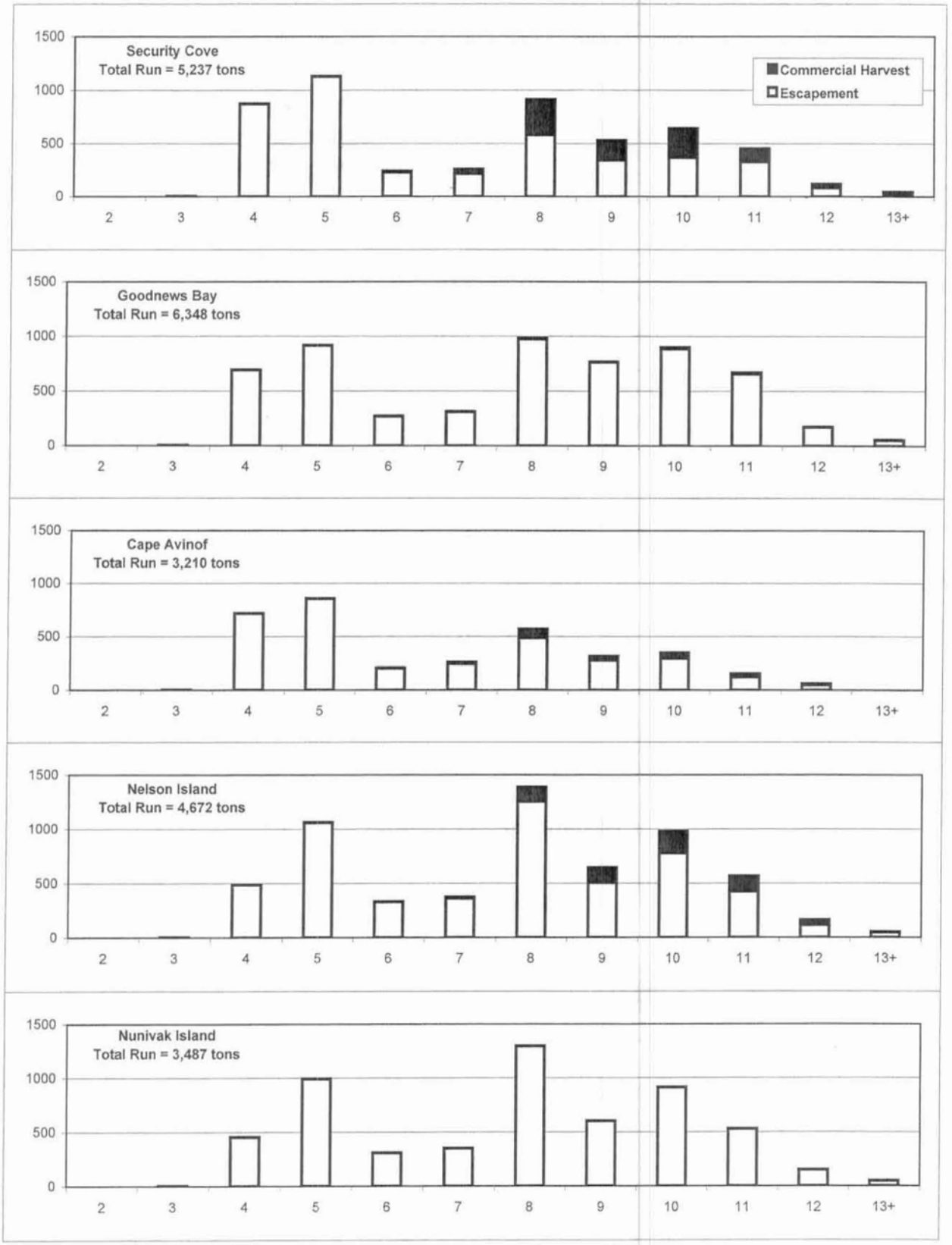


Figure 10. Age composition of Pacific herring in spawning populations and commercial harvest, Kuskokwim Area, Alaska, 2001.

APPENDICES

APPENDIX A

Appendix A.1. Fish species commonly found in the Kuskokwim Area.

Species Code	Genus and Species[a]	Common Name[a]
110	*Gadus macrocephalus*	Pacific Cod
113	*Eleginus gracilis*	Saffron Cod
129	*Platichthys stellatus*	Starry Flounder
122	*Pleuronectes glacialis*	Arctic Flounder
127	*Pleuronectes aspera*	Yellowfin Sole
128	*Pleuronectes vetulus*	English Sole
162	*Cottus cognatus*	Slimy Sculpin
166	*Oligocottus maculosus*	Tidepool Sculpin
192	*Hexagrammos stelleri*	Whitespotted Greenling
200	*Hippoglossus stenolepis*	Pacific Halibut
230	*Clupea pallasi*	Pacific Herring
410	*Oncorhynchus tshawytscha*	Chinook Salmon
420	*Oncorhynchus nerka*	Sockeye Salmon
430	*Oncorhynchus kisutch*	Coho Salmon
440	*Oncorhynchus gorbuscha*	Pink Salmon
450	*Oncorhynchus keta*	Chum Salmon
500	*Esox lucius*	Northern Pike
513	*Osmerus mordax*	Rainbow Smelt
514	*Hypomesus olidus*	Pond Smelt
516	*Mallotus villosus*	Capelin
520	*Salvelinus alpinus*	Arctic Char
532	*Salvelinus malma*	Dolly Varden
541	*Oncorhynchus mykiss*	Rainbow Trout
550	*Salvelinus namaycush*	Lake Trout
570	*Stenodus leucichthys*	Inconnu
588	*Coregonus nasus*	Broad Whitefish
589	*Coregonus pidschian*	Humpback Whitefish
583	*Coregonus sardinella*	Least Cisco
584	*Coregonus autumnalis*	Arctic Cisco
586	*Prosopium cylindraceum*	Round Whitefish
590	*Lota lota*	Burbot
600	*Lampetra tridentata*	Pacific Lamprey
601	*Lampetra japonica*	Arctic Lamprey
610	*Thymallus arcticus*	Arctic Grayling
630	*Dallia pectoralis*	Alaska Blackfish
640	*Catostomus catostomus*	Longnose Sucker
660	*Gasterosteus aculeatus*	Threespine Stickleback
661	*Pungitius pungitius*	Ninespine Stickleback
670	*Percopsis omiscomaycus*	Trout Perch
NA	*Megalocottus platycephalus*	Belligerent Sculpin
NA	*Myoxocephalus quadricornis*	Fourhorn Sculpin

a Based on American Fisheries Society Special Publication No. 20, Common and Scientific Names of Fishes from the United States and Canada (Fifth Edition). Committee and Names of Fishes, Bethesda, Maryland, 1991.

Appendix A.2. Historical events, which have potential or actual, influence on the commercial salmon fisheries of the Kuskokwim Area.

YEAR	EVENT [a]
1913	• Commercial sale of salmon export first documented in the Kuskokwim Area.
1954	• Commercial chinook salmon quota established.
1959	• First chinook landing since quota established.
1960	• Kanektok Counting Tower (1960-1962) • Quinhagak District (W-4) commercial salmon fishery established. • Kuskokwim Area divided into four subdistricts; Lower Kuskokwim River (Subdistrict 1), Middle Kuskokwim River (Subdistrict 2), Upper Kuskokwim River (Subdistrict 3), Quinhagak (Subdistrict 4). District boundaries are not well recorded; in the Aniak area some commonly used drift sites overlap between District 2 and 3 which confused catch reporting. • Kuskokwim River Drainage Surveys, 1960.
1961	• ADF&G Kuskokwim River tagging study.
1962	• ADF&G Kuskokwim River tagging study. • Boundary between Subdistricts 2 and 3 changed; the new location was not recorded but the most likely location was Kolmakof River. The reason for the change was to move the boundary to a point which was between commonly used gillnet locations and thereby avoid confusion in catch reporting. As a result, there were no landings in Subdistrict 3.
1963	• ADF&G Kuskokwim River tagging study. • Boundaries of subdistrict documented; Subdistrict 1 extended from Kuskokuak to Mishevik Slough, Subdistrict 2 was from Mishevik Slough to Kolmakof River, Subdistrict 3 was upstream of Kolmakof River.
1965	• Kwegooyuk test fishery (1965-1984; no records available for 1965).
1966	• ADF&G Kuskokwim River tagging study. • Subdistrict 3 was deleted from the regulations due to a lack of landings.
1968	• Goodnews Bay District (W-5) commercial salmon fishery established.
1969	• District 4 tagging study (1969-1970) on chinook and chum salmon. • Kogrukluk River (aka. Holitna River, Ignatti) tower/weir (1969-present).
1970	• Effect of explosive detonation in ice on northern pike.
1971	• Commercial fishing time in the Kuskokwim River reduced from two 24-hour periods per week to two 12-hour periods per week. • Chum fishery begins in the Kuskokwim River; season was from 25 June to 31 July, location limited to waters downstream of Napakiak, mesh size restricted to 6 in. or smaller. • Fishing periods established by Emergency Order in August. • Gillnet mesh size in Districts 4 and 5 restricted to 6 inch or smaller.
1974	• Commercial sale of salmon roe from subsistence caught fish (1974-1977)
1976	• Commercial fishing time in the Kuskokwim River was reduced from two 12 hour periods per week to two 6 hour periods per week. • Eek River reconnaissance survey. • Study on genetic variants in chum and chinook salmon.

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YEAR	EVENT[a]
1977	• Fishing periods to be established by Emergency Order before 26 June and after 31 July. • Limited entry permits issued. • Subsistence fishing closed 24 hours before during and 6 hours after each commercial fishing period. • Hoholitna River reconnaissance survey
1978	• Kasigluk River reconnaissance survey. • Kwethluk River sonar project.
1979	• The portion of District 1 used during the chum salmon season was extended from Napakiak upstream to Bethel. • Kasigluk River sonar project. • High seas salmon fleet moved for west of 160° W. longitude to west of 180° W. longitude.
1980	• Subsistence fishing closed 24 hours before, during and 6 hours after each commercial fishing period. • Aniak River sonar project.
1981	• Pilot test fish and FanScan projects at Bethel. • Inventory of Kisaralik River and Lake. • Goodnews River counting tower (1981-1990). • Salmon River (Pitka Fork drainage) weir project (1981-1984). • Species identification program results in better differentiation of sockeye and chum salmon.
1982	• Kanektok River sonar project (1982-1986).
1983	• Pilot test fish project at Bethel using drift gillnets. • Provisional escapement goals established for many of the major spawning tributaries in the area. • Management strategy shifts from guideline harvest based to obtaining escapement objective.
1984	• Kwegooyuk test fishery replaced by the Bethel drift test fishery.
1985	• Commercial fishing restricted to mesh sizes less than or equal to 6 inches. • Chum season utilizes entire length of District 1.
1986	• *Migratory timing of coho salmon in the Kuskokwim Area, 1979-1984.* • Kuskokwim River salmon abundance estimate based on calibrated test fish CPUE. • Downstream boundary of District 1 extended to a line from Apokak Slough to Popokamiut.
1987	• Discontinued the directed commercial chinook salmon fishery in the Kuskokwim River. • Sale of chinook salmon limited to 14,000 in the Kuskokwim River June commercial fishery. • First fishing period restricted to that portion of District 1, which is downstream of Bethel, due to chinook conservation concerns. • Subsistence fishing in all of District 2 and its tributary streams is closed before, during and after commercial periods. • South peninsula sockeye and chum salmon tagging study.

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YEAR	EVENT[a]
1988	• Review of the estimation of Kuskokwim River annual salmon passage through expansion of the Bethel test fish CPUE. • Kuskokwim River sonar project (1988-1995). • Kuskokwim River subsistence test fisheries (1988-1990). • District 1 upstream boundary extended to Bogus Creek. • District 2 reduced in size; downstream boundary moved upstream to High Bluffs, the upstream boundary moved downstream to Chuathbaluk. • Portion of Kuskokwim River between Districts 1 and 2 closed to subsistence fishing when District 1 subsistence fishing is closed. • Reorganization of District 1 Statistical Areas. • District 4 Salmon Management Plan adopted. • Establishment of the Kuskokwim River Salmon Management Working Group (1988-present). • Eek Test Fishery (1988-1990, 1992-1995).
1989	• USFWS conducted genetic sampling throughout the Kuskokwim Area. • USFWS conducted chinook tagging study in the lower Kuskokwim River. • Record low temperatures recorded in interior Alaska coupled with shallow snow pack threaten survival of salmon eggs/fry from 1988 spawning.
1990	• ADF&G genetic sampling (1990 - 1996). • Reorganization of District 1 statistical areas. • Upstream boundary of District 1 moved downstream from Bogus Creek to Big (Nelson) Island. • Downstream boundary of District 2 moved upstream to second slough below Kalskag. • District 4 northern boundary is extended north to Weelung Creek.
1991	• USFWS operates Tuluksak River weir (1991-1994). • Weir replaces counting tower on Goodnews River (1991-present).
1992	• Aniak and Chuathbaluk test fisheries (1992-1995). • Eek test fishery is re-established for the coho season. • USFWS operates Kwethluk River weir (1992) • Ban on high-seas drift gillnet fishing imposed. • Unusual proportion of returning 5-year-old chum salmon had reduced growth between the second third annuli. • Failure of age 4 chum salmon in the Kuskokwim River; Aniak drainage especially hard hit; attributed to cold winter of 1988-89.
1993	• Failure of age 4 and 5 chum salmon in the Kuskokwim River, Yukon River, and the Norton Sound/Kotzebue Area; cause unknown; especially hard hit were the Aniak drainage and the Yukon fall chum; commercial fishing severely restricted, chum sport fishery was closed, and the subsistence salmon fishery was restricted and closed for a period of time (first time ever).
1994	• Working Group commissioned and Dr. Mundy started "Recommendations for Strengthening the Cooperative Management Process of the Kuskokwim River Salmon Management Working Group". • Upstream boundary of District 1 moved upstream to Bogus Creek.
1995	• BSFA operates a chum salmon radio telemetry project on the Kuskokwim River. • Takotna Community School and ADF&G operate a salmon counting tower on the Takotna River (1995-1998). • AVCP and BSFA operate the Lower Kuskokwim test fishery in cooperation with ADF&G; the project is a modification of the Eek test fishery.

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YEAR	EVENT[a]
1996	• ADF&G genetic sampling for late spawning chum salmon and one mixed stock sample from District 1.
	• Near record low water levels during June and early August coupled with record high water temperatures.
	• Irregular fishing schedule in District 1 during June and July due to limited market interest for chum salmon.
	• Record early coho run coupled with record high harvest and escapement at Kogrukluk River.
	• AVCP and ADF&G operate a salmon counting tower on the Kwethluk River (1996–1999).
	• KNA and ADF&G operate a salmon weir on the George River (1996-present).
	• Aniak River sonar is relocated to allow for full channel ensoniffication and configurable sonar technology is employed (1996-present).
	• Native Village of Kwinhagak (NVK) begins development of a salmon counting tower on the Kanektok River.
1997	• Kuskokwim River declared an economic disaster area due to very low chum and coho salmon returns, harvests and exvessel prices. Northern boundary of District 4 moved 3 miles south from July 14 to July 28. Record low chum salmon escapement at Kogrukluk River weir.
	• Second summer of record low water levels in the Kuskokwim River basin during the summer and fall coupled with record high water temperatures.
	• Anomalous Bering Sea conditions: warm water, odd plankton blooms, sea bird die offs, etc.
	• Aniak chum salmon return vastly exceeded expectations based on 1992-1993 spawning abundance estimates.
	• Due to an extremely low return of chum salmon, ADF&G, AVCP, KNA, KRSMWG, ONC, TCC and McGrath Native Village Council issue a joint appeal for subsistence users to conserve chum salmon. Record low subsistence harvest of chum salmon in the Kuskokwim Area.
	• Aniak processor does not operate due to depressed salmon market (1997-present)
	• Sale of salmon roe is prohibited in Districts 1 and 2 (effective beginning December 1997).
	• Middle Fork Goodnews River weir converted from fixed-panel to a resistance board "floating weir" and operated through majority of coho run for first time (1997-present).
	• NVK and ADF&G operate a salmon counting tower on the Kanektok River (1997-1998).
1998	• Kuskokwim River declared an economic disaster area for second straight year due to low chum and coho salmon returns, harvests and exvessel prices.
	• KNA and ADF&G operate a salmon weir on the Tatlawiksuk River (1998-present).
	• Second year of anomalous Bering Sea conditions: warm water, odd plankton blooms, sea bird die offs, etc.
	• High water levels severely restrict operational period of many Kuskokwim Area escapement projects.
	• Record low average water temperature measured at the Bethel test fish site.
1999	• Kuskokwim River experiences extremely low chinook, chum and coho salmon returns, harvests and exvessel prices for third consecutive year. All species have very late run timing. Kuskokwim Bay coho returns and harvests extremely low.
	• Federal government assumes control of subsistence fishery management in federal waters on October 1.
	• KNA-operated salmon weirs on the Tatlawiksuk and George Rivers converted to resistance board (floating) weirs and operations extended through coho run.
	• Kuskokwim River sonar project begins redevelopment using split-beam sonar and is relocated to a new site one mile above upstream end of Church Slough.

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YEAR	EVENT[a]
2000	• Kuskokwim River declared an economic disaster area due to extremely low chum salmon return, harvest and exvessel price. Chinook salmon returns are very low for second consecutive year. Many subsistence fishers report that they were unable to meet their chinook and chum salmon harvest goals. • Due to an extremely low return of chinook salmon, ADF&G, AVCP, KNA, KRSMWG, Kwethluk IRA, TCC, McGrath Native Village Council and USF&WS issue a joint appeal for subsistence users to conserve chinook salmon. • ADF&G and Federal Office of Subsistence Management (FOSM) restrict subsistence chinook salmon fishery. • Takotna Community Schools and ADF&G operate a resistance board weir on the Takotna River (2000-present) • Kwethluk IRA and USF&WS operate a resistance board weir on the Kwethluk River (2000-present) • District W-1 divided into Subdistricts W-1A (above Bethel) and W-1B (below Bethel) and fishers are required to register to fish in only one subdistrict. Due to limited processing capacity, only one subdistrict is opened at a time to reduce harvest. • Commercial fishers required to identify vessels with either ADFG or CFEC permit number. • ADF&G Sport Fish Division creates Lower Yukon-Kuskokwim Management Area and stations Area Management Biologist in Bethel. • Line attached to a pole (rod and reel) added to legal gear for subsistence fishing in AVCP area.
2001	• Alaska Board of Fisheries designates Kuskokwim River chinook and chum salmon to be stocks of concern based on the Sustainable Fisheries Policy because of poor runs since 1997. • Subsistence fishing schedule implemented in the Kuskokwim River during June and July to conserve chinook and chum salmon and provide for adequate fishing opportunity throughout the drainage. • Kuskokwim River declared an economic disaster area due to low chum salmon return, harvest and exvessel price. No commercial fishing periods in Kuskokwim River in June and July. Chinook salmon returns are below average in size. • Due to an extremely low return of chinook salmon, ADF&G, AVCP, KNA, KRSMWG, Kwethluk IRA, McGrath Native Village Council, ONC, and USF&WS issue a joint appeal for subsistence users to conserve chinook and chum salmon. • Native Community of Tuluksak and USF&WS operate a resistance board weir on the Tuluksak River. • NVK and ADF&G operate a salmon counting weir on the Kanektok River. • District 4 northern boundary decreased to the northernmost edge of Oyak Creek.

[a] For additional information on specific topics refer to the Region III Report Catalog or historical Area Management Reports for the Kuskokwim Area.

Appendix A.3. Kuskokwim Area escapement index objectives for chinook, sockeye, coho and chum salmon.

	Escapement Objectives[a]			
	Chinook	Sockeye	Coho	Chum
KUSKOKWIM RIVER:				
1. Kwethluk River				
a. 3-step Mt. to Canyon Cr.	1.0	-	-	-
b. Canyon Creek	0.2	-	-	-
2. Kisaralik River				
a. Airstrip to Kisaralik L.	1.0	-	-	-
3. Aniak River				
a. Buckstock R. to Aniak L.	1.5	-	-	10.0
b. Salmon River	0.6	-	-	-
c. Aniak Sonar Project[b]	-	-	-	250.0
5. Holitna River				
a. Nogamut to Kashegelok	2.0	-	-	12.0
b. Kogrukluk Weir[c]	10.0	-	25.0	30.0
6. Salmon River (Pitka Fork)	1.3	-	-	-
KUSKOKWIM BAY:				
1. Kanektok River to Kagati Lake	5.8	15.0	25.0	30.5
2. Goodnews River System				
a. Main Fork and lakes	1.6	15.0	15.0	17.0
b. Middle Fork and lakes	0.8	5.0	2.0	4.0
c. Middle Fork Weir[c]	3.5	25.0	-	15.0

a Escapement objectives in thousands of fish are preliminary and are subject to change as additional data becomes available. Unless otherwise indicated, escapement objectives are based on aerial index counts which do not represent total escapement, but do reflect annual spawner abundance trends when made using standard survey methods under acceptable survey conditions.

b Sonar total escapement estimates.

c Weir total escapement estimates.

Appendix A.4. Kuskokwim Area commercial, subsistence and personal use salmon catches, 1913-2001.

	Commercial Harvest						Subsistence Harvest				Total
Year	Chinook	Sockeye	Chum	Pink	Coho	Subtotal	Chinook	Other[c]	Coho[b]	Subtotal	Harvest
1913	7,800					7,800					7,800
1914		2,667				2,667					2,667
1915											0
1916	949					949					949
1917	7,878					7,878					7,878
1918	3,055					3,055					3,055
1919	4,836					4,836					4,836
1920	34,853					34,853					34,853
1921	9,854					9,854					9,854
1922	8,944	6,120				15,064				180,000	195,064
1923	7,254					7,254					7,254
1924	19,253	900		7,167	7,167	34,487	17,700	203,148		220,848	255,335
1925	1,644	5,800				7,444	10,800	230,850		241,650	249,094
1926										738,576	738,576
1927										286,254	286,254
1928										481,090	481,090
1929										560,196	560,196
1930	7,626	2,448				10,074				538,650	548,724
1931	8,541					8,541				389,367	397,908
1932	9,339					9,339				746,415	755,754
1933							6,290	443,998		450,288	450,288
1934							20,800	597,132		617,932	617,932
1935	6,448				8,296	14,744	22,930	554,040		576,970	591,714
1936	624					624	33,500	549,423		582,923	583,547
1937	480					480		537,111		537,111	537,591
1938	624				828	1,452	10,153	400,242		410,395	411,847
1939	134					134	14,000	125,425		139,425	139,559
1940	247				500	747	8,000	415,523		423,523	424,270
1941	187				674	861	8,000	415,523		423,523	424,384
1942							6,400	325,339		331,739	331,739

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Appendix A.4. (page 2 of 3)

	Commercial Harvest						Subsistence Harvest				Total
Year	Chinook	Sockeye	Chum	Pink	Coho	Subtotal	Chinook	Other[c]	Coho[b]	Subtotal	Harvest
1943							6,400	325,339		331,739	331,739
1944											
1945											0
1946	2,288				674	2,962					2,962
1947	5,356					5,356					5,356
1948											0
1949											0
1950											0
1951	4,210					4,210					4,210
1952											0
1953											0
1954	57					57					57
1955											0
1956											0
1957											0
1958											0
1959	3,760					3,760					3,760
1960	5,969	5,649	0	0	5,498	17,116	18,887	301,753		320,640	337,756
1961	23,246	2,308	18,864	90	5,090	49,598	28,934	179,529		208,463	258,061
1962	20,867	10,313	45,707	4,340	12,432	93,659	13,582	175,304	161,849	350,735	444,394
1963	18,571	0	0	0	15,660	34,231	34,482	170,829	137,649	342,960	377,191
1964	21,230	13,422	707	939	28,992	65,290	29,017	219,208	190,191	438,416	503,706
1965	24,965	1,886	4,242	0	12,191	43,284	24,697	250,878		275,575	318,859
1966	25,823	1,030	2,610	268	22,985	52,716	49,325	175,735		225,060	277,776
1967	29,986	652	8,235	0	58,239	97,112	61,262	214,468		275,730	372,842
1968	43,157	5,884	19,684	75,818	154,275	298,818	35,698	278,008		313,706	612,524
1969	64,777	10,362	50,377	1,251	110,473	237,240	40,617	204,105		244,722	481,962
1970	64,722	12,654	60,566	27,422	62,245	227,609	69,612	246,810	11,868	328,290	555,899
1971	44,936	6,054	99,423	13	10,006	160,432	43,013	116,391	6,899	166,303	326,735
1972	55,598	4,312	97,197	1,952	23,880	182,939	38,176	120,316	1,325	159,817	342,756
1973	51,374	5,224	184,207	634	152,408	393,847	38,451	179,259	23,746	241,456	635,303
1974	30,670	29,003	196,127	60,099	179,579	495,478	26,665	277,170	32,780	336,615	832,093

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	Commercial Harvest						Subsistence Harvest						Total
Year	Chinook	Sockeye	Chum	Pink	Coho	Subtotal	Chinook		Other[c]		Coho[b]	Subtotal	Harvest
1975	28,219	17,686	225,308	910	112,751	384,874	47,569		176,389			223,958	608,832
1976	49,262	14,636	231,877	39,998	112,130	447,903	58,055		223,792		4,312	286,159	734,062
1977	58,256	18,621	298,959	434	263,727	639,997	58,158		203,397		12,193	273,748	913,745
1978	63,194	13,734	282,044	61,968	247,271	668,211	38,145		125,052		12,437	175,634	843,845
1979	53,314	39,463	297,167	574	308,683	699,201	57,053		163,451			220,504	919,705
1980	48,599	42,213	561,483	30,306	327,908	1,010,509	62,047		168,987		47,335	278,369	1,288,878
1981	79,377	105,940	485,653	463	278,541	949,974	64,274		163,554		28,301	256,129	1,206,103
1982	79,816	97,716	326,481	18,259	567,452	1,089,724	61,141		195,691		45,181	302,013	1,391,737
1983	93,676	90,834	306,554	379	248,389	739,832	51,020		149,172		2,834	203,026	942,858
1984	74,016	81,304	488,480	23,902	826,774	1,494,476	60,668		144,651		15,016	220,335	1,714,811
							Chinook	Sockeye	Chum	Pink	Coho		
1985	74,083	121,221	224,680	111	382,096	802,191	45,720	33,632	95,999	1,062	24,524	200,937	1,003,128
1986	44,972	142,029	349,268	16,569	736,910	1,289,748	54,256	20,239	142,930 [c]		29,742	247,167	1,536,915
1987	65,558	170,849	603,274	163	478,594	1,318,438	71,804	25,180	70,709	291	18,085	186,069	1,504,507
1988[de]	74,563	149,949	1,443,953	37,592	623,733	2,329,790	75,107	33,102	153,980		43,866	306,055	2,635,845
1989[d]	66,914	82,365	801,355	819	554,411	1,505,864	85,322	37,088	145,106		57,847	325,363	1,831,227
1990	84,451	203,919	521,023	16,050	443,783	1,269,226	92,678	39,662	131,469		50,713	314,522	1,583,748
1991	48,170	202,441	502,187	522	556,818	1,310,138	90,224	56,404	96,308		55,581	298,517	1,608,655
1992	67,597	192,341	436,506	85,978	772,449	1,554,871	68,665	34,159	99,576		44,496	246,896	1,801,767
1993	26,636	167,235	94,937	71	686,570	975,449	91,721	51,363	61,726		35,295	240,105	1,215,554
1994	27,345	191,169	360,893	84,870	856,100	1,520,377	98,378	39,279	76,951		36,504	251,112	1,771,489
1995	72,352	198,045	707,212	318	555,539	1,533,466	100,159	28,622	68,942		39,165	236,888	1,770,354
1996	22,959	122,260	301,975	1,663	1,099,865	1,548,722	81,598	35,036	90,238		34,698	241,570	1,790,292
1997	47,990	123,002	67,200	7	166,648	404,847	85,506	41,270	40,976		30,714	198,466	603,313
1998	44,402	130,074	268,199	2,720	312,517	757,912	86,115	37,578	67,665		27,239	218,597	976,509
1999	25,019	81,201	72,659	2	32,251	211,132	77,660	49,388	47,612		27,754	202,414	413,546
2000	26,115	109,939	49,574	17	307,439	493,084	68,841	44,832	55,371		35,670	204,714	697,798
2001	14,384	59,545	21,893	0	220,804	316,626	77,570	51,965	51,117		31,686	212,338	528,964
10-Year Average 1991-2000	40,859	151,771	286,134	184 [f]	534,620	1,031,000	84,887	41,793	70,537		36,712	233,928	1,264,928

[a] Primarily chum and coho salmon.

[b] Reported subsistence coho salmon harvest only. Coho salmon subsistence harvest is poorly documented with no Kuskokwim River estimates attempted prior to 1988.

[c] Includes sockeye, pink and chum salmon.

[d] The personal use catch is included with the subsistence catch.

[e] Beginning in 1988, estimates are based on a new formula therefore data since 1988 is not comparable with previous years.

[f] Odd years only.

Appendix A.5. Commercial Fishing Effort in Permit-Hour[a] for the Kuskokwim Area, 1960-2001.

Year	District W-1	District W-2	District W-3	District W-4	District W-5	Total
1960	5,136	960	648	4,368	Closed	11,112
1961	16,200	1,512	1,512	4,992	Closed	24,216
1962	14,274		0	8,434	Closed	22,708
1963	5,712	1,722	0	5,520	Closed	12,954
1964	6,468	1,140	0		Closed	7,608
1965	13,500	546	0	3,696	Closed	17,742
1966	18,270		Closed		Closed	18,270
1967	88,248	1,932		3,954	Closed	94,134
1968	77,466	720		7,986	4,704	90,876
1969	67,140	1,488		29,952	14,055	112,635
1970	56,646	3,414		22,080	9,756	91,896
1971	18,060	1,842		24,987	7,476	52,365
1972	47,802	1,722		7,060	1,452	58,036
1973	77,478	3,072		18,372	2,928	101,850
1974	124,569	4,950		18,984	8,148	156,651
1975	181,786	3,648		12,312	5,400	203,146
1976	82,788	3,894		14,784	4,848	106,314
1977	73,944	3,426		17,592	3,780	98,742
1978	71,856	498		14,952	3,672	90,978
1979	49,608	984		27,096	8,220	85,908
1980	35,370	714		21,636	9,504	67,224
1981	45,096	1,248		25,656	11,256	83,256
1982	46,200	1,128		22,632	14,556	84,516
1983	45,102	708		20,478	9,456	75,744
1984	62,643	1,050		31,488	14,004	109,185
1985	37,452	462		22,260	8,544	68,718
1986	46,944	606		25,740	10,572	83,862
1987	60,525	576		21,222	10,332	92,655
1988	81,724	912		27,276	13,764	123,676
1989	66,990	846		25,992	12,552	106,380
1990	51,236	1,051		44,520	10,548	107,355
1991	64,806	1,548		29,160	11,532	107,046
1992	54,488	1,164		35,280	15,180	106,112
1993	39,210	774		36,000	13,116	89,100
1994	53,808	758		26,580	16,188	97,334
1995	42,784	602		34,680	14,844	92,910
1996	37,015	132		18,880	6,518	62,545
1997	13,662	30		28,848	5,832	48,372
1998	28,212	18		23,712	7,896	59,838
1999	4,788	0		16,488	5,424	26,700
2000	13,936	36		21,852	5,808	41,632
2001	10,028	0		10,689	2,700	23,417
Ten Year Average (1991-2000)	35,271	506		27,148	10,234	73,159

a Number of permits that made deliveries times the number of hours in the period.

Appendix A.6. Estimated ex-vessel value of the Kuskokwim Area commercial salmon fishery, 1964-2001.

Year	Gross Value ($) of Catch to Fishermen	Permits Fished[a]	Average Income
1964	83,030		
1965	90,950		
1966	87,466		
1967	138,647		
1968	290,370		
1969	297,233		
1970	362,470		
1971	371,220		
1972	360,727		
1973	827,735		
1974	1,056,042		
1975	899,178		
1976	1,380,229		
1977	3,891,950		
1978	2,337,470		
1979	3,678,000		
1980	2,725,134		
1981	3,766,525		
1982	4,213,954		
1983	2,670,400		
1984	5,809,000	774	7,505
1985	3,248,089	781	4,159
1986	4,746,089	789	6,015
1987	6,392,822	798	8,011
1988	12,514,489	811	15,431
1989	5,171,860	824	6,277
1990	4,894,580	824	5,940
1991	3,971,423	820	4,843
1992	5,295,912	814	6,506
1993	3,962,890	807	4,911
1994	5,201,611	797	6,526
1995	4,209,752	829	5,078
1996	2,900,603	713	4,068
1997	1,058,808	702	1,508
1998	1,634,495	707	2,312
1999	551,725	604	913
2000	1,197,149	623	1,922
2001	749,916	514	1,459
Ten year Average (1991-2000)	2,998,437	742	3,859

a Number of permits that made at least one delivery

Appendix A.7. Historical salmon escapement data from selected Kuskokwim Area projects, 1976-2001

Year	Operating Period	Chinook	Sockeye	Chum	Pink	Coho
Kogrukluk River Weir [a]						
BEG		**10,000**		**30,000**		**25,000**
1976	06/29 to 07/31	5,579	2,326	8,117	0	[b]
1977	07/14 to 07/27	1,385 [b]	1637 [f]	19,443 [f]	2	[b]
1978	06/28 to 07/31	13,667	1,670	48,125	2	[b]
1979	07/01 to 07/24	11,338	2,628	18,198	1	[b]
1980	07/01 to 07/11	6,572 [f]	3,200 [f]	41,777 [f]	1	[b]
1981	06/27 to 10/05	16,655	18,066	57,365	6	11,455
1982	07/09 to 09/14	10,993 [f]	17,297 [f]	64,063 [f]	19	37,796
1983	06/23 to 09/27	3,009 [f]	1,176 [f]	9,407 [f]	0	8,538
1984	06/19 to 09/15	4,928	4,133	41,484	0	27,595
1985	07/06 to 09/24	4,619	4,359	15,005	0	16,441
1986	06/29 to 09/07	5,038 [f]	4,244 [f]	14,693	0	22,506 [f]
1987	07/15 to 09/24	4,063 [f]	973 [f]	17,422 [f]	0	22,821
1988	07/05 to 09/17	8,505	4,397	39,540 [f]	0	13,512
1989	07/07 to 08/24	11,940 [f]	5,811 [f]	39,549 [f]	0	1,272 [b]
1990	06/28 to 09/07	10,218	8,406	26,765	1	6,132 [f]
1991	07/04 to 09/15	7,850 [f]	16,455	24,188	4	9,964 [f]
1992	07/01 to 08/21	6,755	7,540	34,105	11	26,057 [f]
1993	07/02 to 09/06	12,332	29,358	31,899	0	20,517 [f]
1994	07/02 to 09/14	15,227 [f]	14,192 [f]	46,635 [f]	23	34,695 [f]
1995	07/02 to 09/06	20,630	10,996	31,265	2	27,861 [f]
1996	06/29 to 09/15	14,199	15,385	48,495	6	50,555
1997	06/28 to 09/21	13,286	13,078	7,958	0	12,237
1998	07/18 to 09/19	12,107 [f]	16,773 [f]	36,442 [f]	1	24,348
1999	07/06 to 09/18	5,570	5,864	13,820	0	12,609
2000	07/01 to 09/20	3,310	2,867	11,491	2	33,135
2001	07/05 to 09/25	9,298 [f]	8,773 [f]	30,569 [f]	9	19,387
Aniak River Sonar						
BEG				**250,000** [c]		
Non user-configurable, one-bank expanded estimates						
1980	06/22 to 07/30	56,469		1,169,470		
	08/16 to 09/12					81,556
1981	06/16 to 08/06	42,060		589,286		
1982	06/21 to 08/01	33,864		442,461		
1983	06/18 to 07/28	4,911		129,367		
1984	06/16 to 07/30			266,976		
1985	06/22 to 07/28			253,051		
1986	06/26 to 07/24			209,080		
1987	06/22 to 07/31			193,013		
1988	06/22 to 07/31			401,511		
1989	06/21 to 07/24			243,922		
1990	06/23 to 08/06			232,260		
1991	06/29 to 07/29			314,166		
1992	06/22 to 07/29			84,269		
1993	06/24 to 07/28			13,870		
1994	06/28 to 07/28			388,163		
1995	06/23 to 07/23			[d]		
User-configurable, two-bank estimates						
BEG				**250,000** [e]		
1996	06/21 to 07/28			302,106		
1997	06/16 to 08/03			262,522		
1998	06/24 to 07/31			279,430		
1999	07/01 to 08/03			177,771		
2000	06/25 to 07/31			144,157		
2001	07/11 to 07/31			326,013 [f]		

- continued -

Appendix A.7. (page 2 of 2)

Year	Operating Period	Chinook	Sockeye	Chum	Pink	Coho
Kwethluk River						
Counting Tower						
1992	06/18 to 09/12	9,675	1,316	30,596	45,952	45,605
Tower						
1996	06/22 to 07/27	7,415	1,801 [b]	26,049	2,899 [b]	180 [b]
1997	06/22 to 08/12	10,395	1,374	10,659	1,009 [b]	1,110 [b]
1998	07/24 to 08/18	120 [b]	120 [b]	720 [b]	4,398 [b]	2,367 [b]
1999	07/15 to 08/18	[b]	[b]	[b]	[b]	[b]
Weir						
2000	06/15 to 09/15	3,547	358	12,382	1,407	25,610
2001	08/12 to 09/13	131 [b]	69 [b]	367 [b]	93 [b]	19,634 [b]
Tuluksak River Weir						
1991	06/12 to 09/18	697	34	7,675	391	4,651
1992	06/24 to 09/10	1,083	129	11,183	2,458	7,501
1993	06/17 to 09/10	2,218	88	13,804	210	8,328
1994	06/29 to 09/11	2,922	94	15,707	3,450	8,213
2001	07/07 to 09/02	781 [b]	152	17,709	49	14,550
George River Weir						
1996	06/21 to 07/26	7,716	98	21,670 [f]	644 [b]	173 [b]
1997	06/09 to 09/15	7,834	445	5,907	17	9,210
1998	06/22 to 07/07	2,505 [b]	9 [b]	6,391 [b]	4 [b]	52 [b]
1999	07/14 to 09/25	3,548 [f]	39	11,558 [f]	97	8,930
2000	06/17 to 09/16	2,960	22	3,492	61	11,262
2001	06/25 to 09/22	3,309	24	11,601	83	14,415 [f]
Takotna River						
Counting Tower						
1995	07/07 to 07/31	[b]	0	1,685 [b]	0	0 [b]
1996	06/15 to 07/26	401	0	2,794	0	0 [b]
1997	06/15 to 07/26	1,176	0	1,794		
1998	06/20 to 07/07	[b]	[b]	[b]	[b]	[b]
1999	Not Operational					
Weir						
2000	06/24 to 09/20	345	4	1,254	0	3,957
2001	06/23 to 09/14	723	3	5,479	0	2,560
Tatlawiksuk River Weir						
1998	06/18 to 07/07	970 [b]	0 [b]	5,726 [b]	0 [b]	0 [b]
1999	06/15 to 09/20	1,490	6	9,599	1	3,455
2000	06/15 to 08/13	817	0	7,044	0	5,756 [b]
2001	06/20 to 09/15	2,010	3	23,718	3	10,539 [f]

[a] Weir picket spacing allows pink salmon to pass uncounted.

[b] No counts or incomplete count as project was not operated during a significant portion of the species' migration.

[c] Aniak River sonar counts after 1983 represent multiple species, however, chum salmon are assumed to be the dominant species during the operational period.

[d] Reliable escapement estimates are not available from Aniak River sonar for 1995.

[e] The original Aniak River sonar BEG of 250,000 fish counts has been carried forward to the user configurable project, but the BEG will be reassessed as more information is gathered.

[f] Field operations were incomplete; full season fish passage was estimated.

Appendix A.8. Mean salmon weights and prices paid to commercial permit holders in the Kuskokwim Area, 1967-2001.

	Average Weight (lb)					Average Price ($)				
Year	Chinook	Sockeye	Chum	Pink	Coho	Chinook	Sockeye	Chum	Pink	Coho
1967	27.8	7.4	7.0	[a]	5.9	0.13	0.05	0.04	[a]	0.09
1968	23.8	6.2	7.9	4.0	7.2	0.16	0.10	0.04	0.05	0.09
1969	19.6	6.2	5.8	3.6	7.3	0.19	0.15	0.07	0.06	0.10
1970	18.9	5.4	6.1	3.3	7.3	0.20	0.21	0.08	0.08	0.14
1971 [b]	26.2	6.9	6.4	[a]	6.1	0.17	0.10	0.08	[a]	0.13
1972	24.7	[a]	6.5	[a]	6.4	0.20	[a]	0.08	[a]	0.16
1973	26.7	[a]	6.8	[a]	5.8	0.25	[a]	0.19	[a]	0.26
1974	17.1	6.3	6.8	4.1	7.5	0.46	0.34	0.25	0.23	0.27
1975	14.9	[a]	6.4	[a]	8.2	0.54	[a]	0.26	[a]	0.31
1976 [c]	17.0	6.7	7.0	3.5	7.8	0.64	0.43	0.27	0.25	0.40
1977	22.7	8.3	7.3	3.9	7.8	1.15	0.45	0.45	0.25	0.65
1978	24.2	6.5	8.9	3.9	7.1	0.50	0.49	0.32	0.12	0.40
1979	16.6	6.9	7.0	3.9	7.9	0.66	0.53	0.37	0.11	0.75
1980	14.1	6.7	6.4	3.6	6.9	0.47	0.31	0.24	0.12	0.64
1981	17.8	7.2	7.5	3.5	6.4	0.84	0.61	0.23	0.11	0.63
1982	19.3	7.2	7.3	3.6	7.3	0.82	0.41	0.22	0.05	0.53
1983	18.8	6.8	7.4	3.5	6.8	0.54	0.51	0.33	0.05	0.39
1984	16.4	6.6	6.7	3.2	7.7	0.89	0.52	0.28	0.07	0.55
1985	17.0	7.0	7.1	3.6	7.5	0.71	0.59	0.25	0.05	0.51
1986	17.0	7.2	6.8	3.4	6.4	0.80	0.70	0.25	0.05	0.60
1987	15.2	7.5	6.8	3.7	7.2	1.10	1.30	0.27	0.10	0.73
1988	14.1	7.3	6.9	3.4	7.2	1.30	1.42	0.40	0.15	1.25
1989	16.6	7.2	6.8	3.4	7.3	0.75	1.20	0.26	0.05	0.55
1990	15.1	6.7	6.9	3.2	6.5	0.56	1.05	0.26	0.12	0.62
1991	15.3	6.9	6.3	3.4	6.5	0.56	0.67	0.31	0.12	0.45
1992	13.4	7.0	6.8	3.9	7.3	0.66	0.90	0.32	0.06	0.45
1993	14.3	7.1	6.5	3.4	6.6	0.62	0.70	0.40	0.25	0.58
1994	15.6	6.9	6.6	3.6	7.6	0.51	0.53	0.21	0.08	0.57
1995	17.3	6.9	6.9	3.7	7.2	0.60	0.71	0.18	0.12	0.41
1996	15.7	7.2	7.2	3.8	8.0	0.26	0.40	0.11	0.12	0.25
1997	16.2	7.1	7.3	2.7	7.5	0.28	0.42	0.12	0.10	0.33
1998	14.2	6.8	6.9	3.8	7.8	0.27	0.53	0.13	0.10	0.32
1999	15.5	6.5	7.3	3.0	6.6	0.32	0.58	0.10	0.05	0.32
2000	15.6	6.8	7.6	3.2	6.9	0.39	0.55	0.10	0.10	0.28
2001	20.0	7.6	7.5	[a]	7.7	0.36	0.35	0.10	[a]	0.28
10-Year Average (1991-2000)	15.4	6.9	7.0	3.4	7.2	0.43	0.58	0.19	0.11	0.39

[a] Information unavailable.

[b] Information on price per pound was not available for District 5.

[c] Information was not available for District 4.

Appendix A.9. Maximum, mean, and minimum number of permits used in a single period by district, 1962-2001.

	District 1			District 2			District 4			District 5		
Year	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.	Max.	Mean	Min.
1962	190	121	25				32	19	7		Closed	
1963	103	17	1	17	10	2	30	13	1		Closed	
1964	113	30	1	30	4	1	29	15	1		Closed	
1965	164	43	1	5	3	1	31	13	1		Closed	
1966	172	122	61	1	1	1	12	8	1		Closed	
1967	208	144	10	4	2	1	19	8	1		Closed	
1968	262	164	2				78	38	8	17	13	5
1969	274	161	1	11	2	1	119	51	1	28	21	10
1970	320	198	22	11	6	3	75	48	21	25	16	5
1971	355	117	5	20	14	2	48	36	3	11	9	8
1972	341	149	28	12	10	8				12	9	5
1973	372	234	3	18	11	1	70	42	17	17	10	5
1974	444	272	25							40	23	7
1975	483	280	12				106	47	13	30	20	10
1976	495	357	174	55	33	11	99	44	5	35	13	4
1977	487	380	204	83	54	24	172	70	7	21	15	5
1178	509	390	72	24	12	3	123	38	3	24	15	5
1979	549	456	179	33	27	20	126	63	12	27	19	6
1980	482	421	319	37	23	12	101	56	3	35	22	9
1981	541	442	278	151	42	11	106	69	30	38	24	10
1982	499	414	302	47	7	10	107	67	5	30	25	7
1983	547	442	323	34	24	9	134	70	10	62	30	11
1984	542	411	39	33	17	8	165	82	34	47	38	29
1985	530	446	262	15	11	6	191	84	7	47	34	12
1986	600	489	234	27	9	3	216	86	2	52	31	19
1987	607	513	132	22	16	13	253	105	48	75	41	23
1988	640	583	408	21	17	13	202	73	9	68	39	22
1989	679	509	126	22	17	14	140	77	51	65	39	10
1990	653	614	534	18	16	14	218	106	1	58	27	1
1991	662	589	512	19	17	16	227	81	4	50	28	1
1992	653	577	374	21	15	9	187	86	19	91	34	17
1993	654	556	274	17	16	13	219	94	10	80	40	10
1994	606	501	157	17	13	6	171	69	13	88	34	2
1995	617	469	219	16	7	1	239	87	41	68	32	16
1996	541	351	194	6	3	1	120	65	41	40	28	13
1997	513	455	353	3	3	2	178	78	4	42	21	7
1998	496	392	154	3	2	0	116	64	25	37	23	14
1999	409	398	389	0	0	0	125	72	23	58	23	2
2000[a]	414	315	141	4	3	2	128	67	24	29	21	2
2001[a]	318	180	118	0	0	0	108	47	7	26	15	9

a Combined effort from consecutive Subdistricts W-1A and W-1B openings

Appendix A.10. Kuskokwim Area subsistence Chinook salmon harvest by community, 1960 - 2001.

Community	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Kipnuk	248	11	123	75	a						
Kwigillingok	250	35	43	106	339	a	250	957	70		220
Kongiganak	b	b	b	b						385	891
Tuntutuliak	226	2,226	842	2,853	1,826	1,575	3,097	3,462	2,214	2,195	3,558
Eek				c	c	2,921	4,572	2,566	2,038	2,065	1,882
Kasigluk & Eek					1,857	3,123					
Kasigluk	135	1,215	127	1,302	c	c	1,032	2,766	1,485	2,888	3,931
Nunapitchuk	683	2,042	848	1,874	636	490	2,213	1,926	1,750	2,279	4,680
Atmautluak	b	b	b	b	b	b	b	b	b	b	1,205
Napakiak	1,830	2,573	2,191	3,148	2,677	2,872	3,658	3,895	2,468	3,546	4,960
Napaskiak	536	1,258	759	1,569	2,201	1,071	2,710	2,998	1,663	2,227	3,446
Oscarville	1,968	282	75	309	339	688	322	1,127	393	457	542
Bethel	1,923	4,150	1,378	7,019	4,114	3,371	8,046	13,925	6,205	7,472	17,026
Kwethluk	2,692	3,763	2,329	5,050	3,262	2,887	6,551	6,993	2,848	3,187	7,932
Akiachak	1,626	3,052	1,800	2,533	3,488	3,685	4,904	5,543	3,755	2,602	7,022
Akiak	1,865	3,159	906	2,869	2,495	1,345	3,670	3,660	1,822	1,275	3,290
Tuluksak	737	1,486	493	1,295	572	1,021	1,576	1,709	1,048	1,131	1,995
Lower Kalskag	961	571	c	c	710	c	c	c	1,502	2,102	2,146
Upper Kalskag	667	1,049	c	c	1,143	c	c	c	1,619	1,623	734
Kalskags Comb.			805	2,661		1,395	3,379	3,567			
Aniak	1,057	688	185	602	1,104	c	2,072	1,280	517	1,406	2,136
Aniak[d]					642						
Chuathbaluk	64	54	10	30	74	c	139	217	34	180	219
Napaimute	20	16	44	52	134	a	78	60	94	19	22
Crooked Creek	747	518	561	859	1,358	374	1,446	585	77	541	684
Georgetown							12		0	9	2
Red Devil	c	40	c	c	c	c			111	142	232
Sleetmute	c	222	c	c	c	c	303	343	207	267	161
Sleetmute[e]	465	262	144	228	314	79					
Kashegelok[f]							10				
Stony River	435	25	31		299	79	636	303	176	2,187	105
Lime Village										50	15
Mcgrath							300	25			
Takotna											
Nikolai											
Telida											
Quinhagak								1,349	2,756		
Goodnews Bay											
Platinum											
Total	18,887	28,934	13,582	34,482	29,017	24,697	49,325	61,262	35,698	40,617	69,612

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Appendix A.10. (Page 2 of 4)

Community	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Kipnuk[g]											
Kwigillingok[g]	200	10				75	382	75			
Kongiganak	41					122	361				
Tuntutuliak	1,841	3,214	2,859	1,577	3,492	4,807	2,470	1,656	2,268	2,545	4,446
Eek	1,969		1,981	2,356	2,110	3,232	2,675	1,807	2,003	1,557	1,731
Kasigluk	1,645	1,292	1,864	1,411	1,713	1,613	1,324	608	1,142	1,704	3,377
Nunapitchuk	1,978	2,496	2,663	1,165	2,092	2,578	2,622	2,178	2,109	2,612	2,918
Atmautluak	548	864	1,106	382	1,042	1,159	1,015	966	2,242	1,288	1,247
Napakiak	1,868	2,009	1,763	1,224	2,864	3,330	2,702	2,140	2,191	2,582	3,017
Napaskiak	1,916	1,578	2,048	900	2,303	3,566	1,989	2,122	2,085	3,160	2,911
Oscarville	570	196	586	180	891	623	672	349	629	477	495
Bethel	8,731	8,371	8,898	4,631	11,688	13,215	9,408	6,905	11,564	12,591	15,367
Kwethluk	5,564	5,137	3,444	2,694	3,179	4,193	5,563	3,172	6,919	7,627	6,167
Akiachak	4,818	3,872	2,592	1,726	3,534	4,915	5,407	2,951	4,818	5,405	3,094
Akiak	2,688	1,899	1,895	1,292	2,837	3,076	2,880	1,850	3,567	3,355	2,386
Tuluksak	1,280	1,318	1,322	883	1,338	1,411	2,906	1,906	1,489	2,807	2,446
Lower Kalskag	2,355	2,604	1,309	1,586	2,755	4,536	1,750	1,951	2,821	3,917	3,271
Upper Kalskag	601	401	938	463	1,752	1,413	2,813	1,253	1,590	1,889	1,171
Aniak	1,076	2,105	1,030	1,952	1,391	1,490	4,991	1,331	2,634	2,750	3,102
Chuathbaluk	179	261	942	674	594	657	1,507	1,238	2,189	1,507	841
Napaimute	17	20	13	6	16	420	176	144	149	90	45
Crooked Creek	291	183	269	650	238	264	619	488	728	654	512
Georgetown							66			93	
Red Devil	135	182	138	205	623	195	324	153	488	255	298
Sleetmute	181	69	504	269	256	356	684	300	755	220	728
Kashegelok[f]						156	233	92			
Stony River	402	95	287	439	761	620	33	182	171	332	233
Lime Village	2,119				100	33			38		
McGrath									581		
Takotna									65		
Nikolai									60		500
Telida											
Quinhagak							2,012	2,328	1,420	1,940	2,562
Goodnews Bay							574		228	498	1,309
Platinum									110	192	100
Total	43,013	38176	38,451	26,665	47,569	58,055	58,158	38,145	57,053	62,047	64,274

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Appendix A.10. (Page 3 of 4)

Community	1982	1983	1984	1985	1986	1987	1988[f]	1989	1990	1991	1992
Kipnuk[g]	60							54	108	80	
Kwigillingok[g]											9
Kongiganak	52			235			585	1,412	1,442	778	904
Tuntutuliak	1,984	2,523	3,519	2,644	2,452	2,522	2,741	3,781	4,044	4,143	3,524
Eek	2,578	2,040		1,436			2,212	1,580	4,920	2,360	2,232
Kasigluk	3,115			2,054			1,367	2,173	3,167	2,955	94
Nunapitchuk	2,577	2,688		2,019	3,410	3,372	2,297	3,170	3,199	4,106	3,575
Atmautluak	1,752			1,559			1,131	1,227	2,569	1,784	1,422
Napakiak	3,500	2,047		1,805		2,760	3,091	3,710	4,158	2,543	3,328
Napaskiak	2,872			2,155		2,907	3,898	4,699	4,972	3,864	4,133
Oscarville	523			916		745	415	1,591	898	1,422	122
Bethel	13,516	8,492	11,066	6,940	11,984	8,107	15,038	24,655	19,641	28,817	17,196
Kwethluk	5,897		6,732	4,937	5,824	8,779	10,976	7,562	9,218	7,511	6,504
Akiachak	4,468		5,588	3,254		4,871	9,563	5,504	7,168	5,657	4,163
Akiak	2,745		3,413	2,975		3,683	3,706	4,811	5,178	3,247	3,207
Tuluksak	2,220	1,671	2,286	2,749		3,712	3,289	3,791	1,878	3,351	2,382
Lower Kalskag	2,594		3,242	1,707	1,666		3,024	3,337	2,494	3,947	2,269
Upper Kalskag	963		657	605	587		859	1,256	1,558	1,105	1,366
Aniak	2,071	3,174	1,847	1,828	4,624	2,131	4,071	3,406	3,189	3,261	3,955
Chuathbaluk	1,491			1,102			34	403	1,674	791	933
Napaimute	138			53							
Crooked Creek	515			218			618	451	929	947	472
Red Devil	273			176			263	189	273	168	328
Sleetmute	242		154	745			433	420	711	770	801
Stony River	419			167			315	692	498	586	233
Lime Village							341	105	240	60	
McGrath	160	830	730	59			440	418	1,231	880	1,038
Takotna							100	62	62	0	0
Nikolai	778	750	795	615			136	716	560	421	605
Telida								1			0
Quinhagak	2,402	2,542	3,109	2,341	2,682	3,663	3,690	3,542	6,013	3,693	3,447
Goodnews Bay	1,185	1,004	597	399	513	640	289	419	351	894	318
Platinum	51	62	32	27	42	176	21	48	188	23	56
Mekoryuk[g]								0	0	0	0
Newtok[g]							14	5	1	0	
Nightmute[g]							17	0	3	20	
Toksook Bay[g]							81	127	143	25	49
Tununak[g]							52	5	0	15	
Other											21
Total	61,141	51,020[h]	60,668[h]	45,720	54,256[h]	71,804[h]	75,107	85,322	92,678	90,224	68,665

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Appendix A.10. (Page 4 of 4).

Community	1993	1994	1995	1996	1997	1998	1999	2000	2001
Kipnuk[g]	348	150				119	29	170	1
Kwigillingok[g]	80	7		15		100			
Kongiganak	781	1,271	843	830	1,609	1,250	1,320	1,299	1,454
Tuntutuliak	3,633	4,679	4,023	4,027	3,730	4,008	3,645	2,939	2,993
Eek	2,619	2,917	3,535	2,568	2,253	2,131	1,816	2,112	1,728
Kasigluk	548	694	392	579	880	541	480	731	588
Nunapitchuk	3,810	4,746	4,400	3,234	4,086	4,934	4,521	3,354	3,250
Atmautluak	1,818	1,819	1,918	1,801	1,768	1,452	1,469	1,174	740
Napakiak	3,972	3,545	3,902	3,784	2,873	3,504	2,380	2,178	2,290
Napaskiak	5,671	6,356	4,984	4,453	4,887	5,452	3,827	4,309	4,662
Oscarville	1,475	1,385	1,438	996	512	981	2,289		1,753
Bethel	22,083	24,515	29,568	20,783	21,253	23,963	24,996	22,515	27,209
Kwethluk	9,181	9,262	8,931	9,183	6,872	7,940	6,081	4,925	6,127
Akiachak	7,231	8,081	6,571	5,209	7,414	6,507	5,373	6,124	6,445
Akiak	4,280	4,759	4,118	4,569	3,378	3,311	2,356	2,190	3,369
Tuluksak	3,755	4,534	4,333	3,143	5,627	3,701	2,348	2,432	2,451
Lower Kalskag	3,930	3,976	5,321	2,870	3,549	2,041	1,787	1,822	2,181
Upper Kalskag	1,679	1,340	1,396	1,351	1,107	1,244	1,688	1,237	1,014
Aniak	4,618	3,413	3,422	3,204	3,794	3,508	2,596	3,117	2,524
Chuathbaluk	1,447	1,043	2,615	880	1,290	810	1,110	303	627
Crooked Creek	771	968	934	864	944	772	681	575	508
Red Devil	487	379	425	337	452	262	161	94	175
Sleetmute	1,767	1,327	885	1,230	1,171	947	447	430	473
Stony River	445	359	559	597	863	445	55	21	139
Lime Village	41	216	144	48	59	241	155	45	262
McGrath	567	1,052	800	1,203	974	769	1,295	642	360
Takotna	0	0		0		2	0	0	5
Nikolai	475	449	979	305	232	330	288	155	282
Telida									
Quinhagak	3,368	3,995	2,746	3,075	3,433	4,041	3,167	3,106	2,923
Goodnews Bay	628	712	858	403	437	713	805	601	859
Platinum	80	72	25	12	12	5	66	102	36
Mekoryuk[g]	0	6		0		1	15	2	
Newtok[g]	0	2						19	12
Nightmute[g]		8					6	8	
Toksook Bay[g]	128	341	94	45	47	48	407	58	130
Tununak[g]	5	0				40	0	52	
Chefornak[g]						2			
Other									
Total	91,721	98,378	100,159	81,598	85,506	86,115	77,660	68,841	77,570

Blanks indicate missing data.

a Data collected, combined with unspecified village or villages.
b Village not yet founded.
c Data collected, but reported with another village.
d Aniak, Chuathbaluk and Russian Mission.
e Sleetmute to Red Devil.
f Kashegelok and Holitna.
g Reported catch only.
h Estimate based on a sample of villages surveyed.
l Beginning in 1988, estimate based on new formula, data not comparable to previous years.

Appendix A.11. Kuskokwim Area subsistence sockeye salmon harvest by community, 1985 – 2001.

Community	1985	1986	1987	1988[c]	1989	1990	1991	1992	1993	1994	1995
Kipnuk[a]					402	175	136		90	132	
Kwigillingok[a]								0	140	5	
Kongiganak	130			830	658	423	533	905	705	702	530
Tuntutuliak	1,498	288	991	600	1,173	1,954	1,768	1,894	955	3,185	1,134
Eek	241			336	170	1,177	489	671	406	461	283
Kasigluk	1,138			376	235	810	1,421	81	122	275	165
Nunapitchuk	1,447	905	1,187	884	1,026	1,098	2,277	2,273	2,545	1,555	882
Atmautluak	1,308			320	1,143	1,501	881	1,304	1,387	796	1,099
Napakiak	1,242		1,439	1,087	1,752	1,375	1,176	1,315	1,150	1,627	959
Napaskiak	1,181		2,199	1,120	721	1,227	2,673	2,428	3,495	1,933	1,605
Oscarville	942		438	1,752	404	153	711	35	932	324	414
Bethel	3,409	7,730	3,810	5,614	7,316	6,392	17,669	7,173	10,503	8,563	8,190
Kwethluk	5,584	5,423	3,845	5,190	2,414	4,055	3,723	1,829	3,790	3,742	2,504
Akiachak	3,182		3,532	4,890	2,420	3,176	4,123	3,095	4,545	3,323	2,019
Akiak	1,368		1,883	1,378	2,492	1,739	1,708	1,458	3,558	1,786	643
Tuluksak	1,620		1,733	1,493	2,314	1,120	3,595	2,034	2,492	1,393	1,244
Lower Kalskag	948	783		1,581	767	851	1,092	467	2,339	950	681
Upper Kalskag	187	1,182		345	338	287	276	333	349	298	55
Aniak	2,116	2,652	2,101	1,078	959	1,356	2,031	1,180	1,578	571	975
Chuathbaluk	1,797			44	215	1,178	1,246	471	823	995	472
Napaimute	125										
Crooked Creek	1,218			327	436	1,556	998	489	831	512	192
Red Devil	205			437	356	445	426	315	717	311	620
Sleetmute	1,351			898	776	1,060	1,164	855	1,609	1,158	1,083
Stony River	585			195	1,084	835	1,912	1,462	1,488	802	1,342
Lime Village					5,653	2,333	956	0	2,800	1,760	700
McGrath			0	0	0	0	0	0	0	0	0
Takotna			0	0	0	0	0	0	0	0	
Nikolai			0	0	0	0	0	0	0	0	0
Telida				0	0			0			
Quinhagak	106	423	1,067	1,261	633	1,951	1,772	1,264	1,082	1,000	573
Goodnews Bay	562	860	834	898	710	970	1,132	669	784	669	219
Platinum	142	83	121	167	151	153	150	158	51	101	34
Mekoryuk[a]				1	0	50	1	0	1	87	
Newtok[a]					10	3	0		0	20	
Nightmute[a]					0	10	210			15	
Toksook Bay[a]					277	242	105	1	66	228	5
Tununak[a]					83	7	50		30	0	
Other[a]								1	1		
Total	33,632	20,239[b]	25,180[b]	33,102	37,088	39,662	56,404	34,159	51,363	39,279	28,622

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Community	1996	1997	1998	1999	2000	2001
Kipnuk[a]			107	54	179	4
Kwigillingok[a]	10		125			
Kongiganak	722	1,128	888	991	1,789	1,460
Tuntutuliak	1,526	2,048	1,275	2,048	1,236	1,701
Eek	478	584	382	625	878	923
Kasigluk[a]	588	499	53	183	666	320
Nunapitchuk	1,735	2,330	2,250	3,493	2,111	2,583
Atmautluak	1,456	724	1,050	1,874	1,516	958
Napakiak	1,083	1,455	1,705	2,115	2,026	1,861
Napaskiak	2,446	2,329	1,617	2,058	2,611	3,428
Oscarville	212	78	288	2,165		1,620
Bethel	7,112	10,868	8,134	13,145	12,536	15,709
Kwethluk	4,035	3,581	4,036	3,112	3,685	3,960
Akiachak	2,607	3,014	2,654	3,130	3,597	4,300
Akiak	1,449	1,398	1,478	1,145	970	1,916
Tuluksak	1,075	1,558	1,490	1,490	2,207	1,759
Lower Kalskag	1,144	1,455	574	605	885	824
Upper Kalskag	294	251	245	614	636	304
Aniak	1,277	1,124	1,151	1,310	1,143	2,223
Chuathbaluk	661	881	248	460	515	537
Crooked Creek	304	350	716	690	505	476
Red Devil	977	697	346	568	107	361
Sleetmute	1,304	1,458	1,398	946	759	940
Stony River	1,218	1,607	433	1,230	266	138
Lime Village	500	660	2,782	2,550	918	1,516
McGrath	0	20[d]		74	42	244
Takotna	0	0		0	0	0
Nikolai	0	0		0	0	0
Telida						
Quinhagak	400	556	1,490	1,639	1,341	914
Goodnews Bay	411	472	483	770	1,028	921
Platinum[a]	7	137	25	102	177	53
Mekoryuk[a]	0		21	2	7	
Newtok[a]					124	
Nightmute[a]				5	71	
Toksook Bay[a]	5	8	101	193	253	12
Tununak[a]			20	0	48	
Chefornak[a]			13			
Other						
Total	35,036	41,270	37,578	49,388	44,832	51,965

Blanks indicate missing data.

a Reported harvest only.

b Estimated total based on sampled villages.

c Beginning in 1988, estimate based on new formula, data not comparable to previous years.

d McGrath residents sometimes travel to areas downriver to harvest sockeye.

Appendix A.12. Kuskokwim Area subsistence Coho salmon harvest by community, 1985 - 2001.

Community	1985	1986	1987	1988[c]	1989	1990	1991	1992	1993	1994	1995
Kipnuk[a]					200	460	30		25	185	
Kwigillingok[a]								0	80	0	
Kongiganak	88			1,146	562	413	540	544	502	566	605
Tuntutuliak	371	1,692	760	754	508	1,135	729	761	820	441	365
Eek	406			291	349	1,620	343	531	206	426	347
Kasigluk	1,763			906	772	958	1,769	174	228	387	518
Nunapitchuk	513	1,084	696	898	469	573	1,167	2,226	321	781	641
Atmautluak	326			337	971	350	254	518	426	411	566
Napakiak	836		959	588	1,757	1,700	597	1,237	590	920	390
Napaskiak	415		629	1,503	1,130	922	754	866	783	2,012	580
Oscarville	155		40	50	430	43	136	0		49	
Bethel	6,094	19,351	8,077	8,291	22,390	19,342	28,136	15,902	13,764	12,258	19,906
Kwethluk	3,041	3,545	2,537	5,240	3,736	3,928	2,380	2,325	1,838	1,816	1,304
Akiachak	967		286	7,927	1,890	1,621	2,393	2,108	1,351	1,531	677
Akiak	1,270		1,294	1,577	4,959	1,591	2,231	1,137	1,315	1,110	501
Tuluksak	1,723		337	1,537	1,483	946	1,903	1,544	412	285	531
Lower Kalskag	596	2,211		158	981	375	510	469	778	845	718
Upper Kalskag	105	759		136	688	300	493	931	354	184	167
Aniak	1,552	1,051	2,302	1,903	2,640	1,484	1,143	1,844	1,091	1,682	1,265
Chuathbaluk	393			72	272	813	93	349	366	795	84
Napaimute	211										
Crooked Creek	290			89	530	886	277	413	409	581	381
Red Devil	846			672	1,591	866	1,132	1,160	1,812	994	1,557
Sleetmute	1,330			1,776	1,009	1,023	1,557	1,132	880	649	1,075
Stony River	395			161	611	423	502	744	512	505	1,083
Lime Village				1,055	2,025	538	336	300	618	960	246
McGrath				790	537	2,408	882	2,780	1,989	2,558	2,225
Takotna					40	0	0	0	0	0	
Nikolai	550			530	328	73	83	173	267	119	545
Telida					60			0			
Quinhagak	67	41	125	4,317	3,787	4,174	3,232	2,958	2,152	2,739	2,561
Goodnews Bay	210			1,072	830	1,556	1,789	1,163	1,197	435	296
Platinum	11	8	43	90	77	90	39	190	29	77	9
Mekoryuk[a]					106	52	130	2	53	87	
Newtok[a]					15	4	0		0	0	
Nightmute[a]					70	0	20			0	
Toksook Bay[a]					35	46	1	15	57	116	22
Tununak[a]					9	0	0		70	0	
Other[a]							39				
Total	24,524	29,742[b]	18,085[b]	43,866	57,847	50,713	55,581	44,496	35,295	36,504	39,165

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Community	1996	1997	1998	1999	2000	2001
Kipnuk[a]			85	75	223	74
Kwigillingok[a]	5		40			
Kongiganak	421	618	275	222	339	925
Tuntutuliak	1,339	669	935	331	3,435	337
Eek	389	80	306	258	488	207
Kasigluk[a]	368	518	140	92	1,667	344
Nunapitchuk	1,310	872	427	391	366	392
Atmautluak	537	531	425	205	224	369
Napakiak	600	168	749	487	502	644
Napaskiak	398	658	540	355	889	466
Oscarville	19	60	2	970		42
Bethel	12,929	15,108	11,294	12,414	13,794	14,949
Kwethluk	3,195	1,193	1,731	2,993	3,271	1,688
Akiachak	850	441	477	663	2,509	1,633
Akiak	972	846	674	254	483	564
Tuluksak	1,116	434	879	307	523	971
Lower Kalskag	1,022	652	347	302	428	539
Upper Kalskag	360	781	812	153	288	416
Aniak	2,671	1,494	1,308	1,418	1,922	1,906
Chuathbaluk	395	217	55	137	469	541
Crooked Creek	171	261	392	515	132	70
Red Devil	1,274	1,391	425	455	158	427
Sleetmute	846	419	301	226	552	452
Stony River	571	450	429	511	10	347
Lime Village	0	277	776	600	362	590
McGrath	919	753	924	553	700	420
Takotna	0		3	0	21	26
Nikolai	64	141	113	117	31	165
Telida						
Quinhagak	1,467	1,264	1,702	2,021	1,088	1,525
Goodnews Bay	293	343	312	439	414	508
Platinum[a]	59	54	19	143	103	108
Mekoryuk[a]	3		178	64	78	
Newtok[a]					64	
Nightmute[a]				0	2	
Toksook Bay[a]	135	21	97	83	112	16
Tununak[a]			60	0	23	25
Chefornak[a]			7			
Others						
Total	34,698	30,714	27,239	27,754	35,670	31,686

Blanks indicate missing data.

a Reported harvest only.

b Estimated total based on sampled villages.

c Beginning in 1988, estimate based on new formula, data not comparable to previous years.

Appendix A.13. Kuskokwim Area subsistence chum salmon harvest by community, 1985 - 2001.

Community	1985	1986	1987	1988[c]	1989	1990	1991	1992	1993	1994	1995
Kipnuk[a]					0	540	205		601	214	
Kwigillingok[a]								0	200	5	
Kongiganak	671			1,473	1,967	980	1,036	1,524	811	1,340	1,275
Tuntutuliak	4,346	2,734	5,385	4,700	5,068	6,250	4,755	6,052	2,899	5,232	3,488
Eek	401			1,323	972	3,090	814	1,397	244	624	815
Kasigluk	4,199			3,541	3,007	3,406	3,137	26	374	537	457
Nunapitchuk	4,346	4,676	4,621	7,331	6,923	5,240	6,055	8,229	4,854	4,587	4,297
Atmautluak	4,440			4,695	3,014	4,006	2,394	3,183	1,345	1,455	3,466
Napakiak	3,686		2,784	4,535	7,068	8,389	2,340	4,401	2,281	4,096	3,084
Napaskiak	5,810		6,832	11,623	13,079	8,166	6,582	6,061	3,622	5,605	4,271
Oscarville	1,294		1,135	2,461	1,341	925	1,141	29	566	676	1,018
Bethel	9,260	14,778	7,974	17,442	25,581	18,436	22,770	14,908	9,172	12,341	15,821
Kwethluk	6,866	9,736	7,636	21,352	10,128	11,102	5,497	7,647	3,491	6,102	6,050
Akiachak	5,931		4,355	17,749	7,747	9,133	5,994	5,771	3,492	6,286	4,074
Akiak	6,724		3,837	6,699	13,000	8,235	6,668	5,907	7,549	4,599	1,878
Tuluksak	6,064		3,466	7,046	9,796	5,845	5,695	4,798	3,834	2,476	2,609
Lower Kalskag	4,637	2,538		8,232	4,932	4,212	2,886	2,758	3,062	2,758	1,455
Upper Kalskag	1,855	3,684		3,317	3,427	1,321	2,357	2,843	578	864	1,351
Aniak	8,804	5,905	5,751	11,628	10,404	9,089	3,492	7,870	2,900	2,612	3,566
Chuathbaluk	3,782			450	2,051	4,510	1,912	2,502	2,895	1,615	1,807
Napaimute	414										
Crooked Creek	2,888			768	779	2,884	1,367	904	715	649	358
Red Devil	1,021			3,168	1,376	1,466	1,236	1,523	1,004	1,220	882
Sleetmute	3,689			4,873	1,813	1,874	1,862	3,151	681	1,533	1,758
Stony River	722			3,405	1,352	1,132	602	1,335	775	932	1,375
Lime Village				913	2,100	2,500	715	0	508	2,080	920
McGrath				639	1,276	2,839	1,068	2,854	590	1,294	1,486
Takotna				200	250	56	0	0	0	0	
Nikolai	2,900			2,404	1,221	882	495	818	353	293	301
Telida					15			0			
Quinhagak	901	808	1,084	1,065	1,568	3,234	1,593	1,833	1,008	1,452	686
Goodnews Bay	339	188	371	405	620	193	144	921	188	425	152
Platinum	9	3	207	43	164	139	5	85	0	45	3
Mekoryuk[a]				500	2,915	1,067	1,178	0	808	2,337	
Newtok[a]					20	4	0		0	0	
Nightmute[a]					30	35	60			7	
Toksook Bay[a]					86	224	103	246	296	660	239
Tununak[a]					16	65	150		30	0	
Other[a]							3	1			
Total	95,999	142,930[b]	70,709[b]	153,980	145,106	131,469	96,308	99,576	61,726	76,951	68,942

-continued-

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Community	1996	1997	1998	1999	2000	2001
Kipnuk[a]			114	31	269	2
Kwigillingok[a]	30		250			
Kongiganak	1,331	902	1,643	1,152	1,850	1,998
Tuntutuliak	5,852	2,877	3,774	1,862	2,735	2,621
Eek	923	649	787	508	636	347
Kasigluk[a]	1,196	1,278	218	350	930	550
Nunapitchuk	5,833	2,794	5,389	4,742	4,694	4,749
Atmautluak	2,672	1,484	1,916	1,667	1,819	1,350
Napakiak	4,249	1,458	4,556	1,573	2,987	1,723
Napaskiak	4,983	2,589	4,227	2,687	2,848	2,399
Oscarville	1,552	35	420	1,906		2,097
Bethel	16,403	8,790	12,057	11,163	10,616	11,319
Kwethluk	11,870	3,554	4,786	3,449	5,048	4,365
Akiachak	4,993	1,768	2,467	2,741	4,589	2,872
Akiak	4,640	1,725	2,231	1,202	2,456	2,093
Tuluksak	3,167	2,887	3,224	1,566	2,504	1,862
Lower Kalskag	3,357	1,487	977	759	1,641	1,316
Upper Kalskag	1,621	405	487	665	1,558	1,187
Aniak	8,447	1,747	5,023	1,764	1,943	1,982
Chuathbaluk	2,089	1,244	1,027	729	704	2,338
Crooked Creek	347	311	2,561	806	812	943
Red Devil	787	551	565	193	53	335
Sleetmute	1,215	417	981	367	390	328
Stony River	443	591	897	358	99	143
Lime Village	500	251	964	1,012	294	683
McGrath	206	111	1,462	260	161	199
Takotna	10		15	0	0	8
Nikolai	249	65	519	89	60	65
Telida						
Quinhagak	930	600	1,448	1,810	912	747
Goodnews Bay	214	133	285	250	280	182
Platinum[a]	5	0	31	31	84	44
Mekoryuk[a]	0		2,176	1,583	2,120	
Newtok[a]					16	36
Nightmute[a]				10	2	
Toksook Bay[a]	124	273	171	326	217	234
Tununak[a]				0	44	
Chefornak[a]			17			
Other						
Total	90,238	40,976	67,665	47,612	55,371	51,117

Blanks indicate missing data.

a Reported harvest only.

b Estimated total based on sampled villages.

c Beginning in 1988, estimate based on new formula, data not comparable to previous years.

APPENDIX B

Appendix B.1. Kuskokwim River distances[a]

Location	Distance from the Mouth		Distance from Bethel	
	Kilometer	Miles	Kilometer	Miles
Popokamiut (Lower boundary District 1)	-3	-2	-129	-80
Kuskokwim River Mouth 60.80 N, 162.42 W	0	0	-125	-78
Eek Island, Southernmost tip, (Lower boundary District 1)	19	12	-106	-66
Apokak Slough (Lower boundary District 1)	35	22	-90	-56
Eek River	39	24	-87	-54
Kwegooyuk	42	26	-84	-52
Kinak River	48	30	-78	-48
Tuntutuliak Village	56	35	-87	-54
Kialik River	59	37	-66	-41
Fowler Island	83	52	-42	-26
Johnson River	93	58	-32	-20
Napakiak Village	104	65	-21	-13
Napaskiak Village	115	71	-12	-7
Oscarville Village	115	71	-11	-7
Bethel City	125	78	0	0
Gweek River	145	90	20	12
Kwethluk Village	159	99	34	21
Akiachak Village	169	105	43	27
Kasigluk River	173	108	48	30
Kisaralik River	175	109	50	31
Akiak Village	190	118	64	40
Mishevik Slough,	212	132	87	54
Tuluksak Village	218	136	93	58
Nelson Island	220	137	95	59
(District 1 Boundary), Bogus Creek	234	146	109	68
High Bluffs	264	164	139	86
Boundary of District 2	295	183	170	105
Mud Creek Slough	297	185	172	107
Kalskag Village	309	192	184	114
Aniak Village, Aniak River	362	225	237	147
Chuathbaluk Village (Upper boundary District 2)	375	233	250	155
Kolmakof River	395	246	270	168
Napaimiut Village	410	255	285	177

(continued)

Appendix B.1. (page 2 of 2)

Location	Distance from the Mouth		Distance from Bethel	
	Kilometer	Miles	Kilometer	Miles
Holokuk River	415	258	290	180
Oskawalik River	449	279	324	201
Crooked Creek Village	466	290	341	212
Georgetown Village, George River	497	309	372	231
Red Devil Village	526	327	401	249
Sleetmute village	539	335	414	257
Holitna River	540	336	415	258
Stony River Village	585	364	460	286
Stony River	587	365	462	287
Swift River	611	380	486	302
Tatlawiksuk River	616	383	491	305
Devil's Elbow	645	401	520	323
Vinasale	740	460	615	382
McGrath Village	815	507	690	429
Middle Fork	889	553	764	475
Big River	801	560	776	482
Pitka Fork	920	572	795	494
Medra Village	928	577	803	499
South Fork	931	579	806	501
East Fork	943	586	818	508
North Fork	943	586	818	508
Nikolai Village	999	621	874	543
Swift Fork	1,136	706	1,011	628
Telida Village	1,184	736	1,059	658
Highpower Creek	1,200	746	1,075	668
Fish Creek	1,284	798	1,159	720
North Fork Lake	1,334	829	1,209	751
Top of Kuskokwim Drainage	1,498	931	1,373	853

[a] These distances were taken from the USGS 1:36,300 series of topographic maps. The "mouth" was defined as the point where the "grassland" banks are 24 miles apart. Some locations are not on the mainstem of the Kuskokwim River, as a result their mileages appear to be out of sequence since they are listed in the order of the turn off.

Appendix B.2. Lower Kuskokwim River, District 1 commercial effort, 1970-2001.

Year	Unrestricted Mesh Season	Restricted Mesh Season	Coho Salmon Season	Total
1970	361	a	266	387
1971	418	216	83	422
1972	405	176	245	425
1973	456	341	411	530
1974	606	467	516	666
1975	472	540	533	737
1976	561	517	516	674
1977	563	522	572	653
1978	615	617	597	723
1979	591	617	613	685
1980	553	579	586	663
1981	589	613	586	679
1982	610	576	596	686
1983	544	619	577	679
1984	520	587	619	654
1985	b	598	627	654
1986	b	631	663	688
1987	b	680	694	703
1988	b	c	c	746

	Number of Permits Landing Each Species						
	Chinook	Sockeye	Coho	Pink	Chum	Roe	Total
1989	695	688	732	261	719	22	745
1990	724	722	714	526	736	1	744
1991	687	705	731	159	733	1	749
1992	711	706	706	520	722	0	741
1993	669	654	717	54	715	0	740
1994	651	666	682	664	700	0	706
1995	684	692	680	80	699	0	712
1996	482	514	615	196	593	17	620
1997	445	446	593	2	551	0	604
1998	555	568	580	48	589	0	618
1999	412	425	388	2	442	0	509
2000	210	328	515	5	353	0	532
2001	77	61	413	0	258	0	411
Ten Year Average	551	570	621	173	610	2	653

a No commercial salmon season

b No unrestricted mesh season.

c Fishery continued without interruption

Appendix B.3. Utilization of chinook salmon in the Kuskokwim River, 1960-2001.

Year	Commercial Harvest[a]	Subsistence Harvest[b]	Test Fishery Harvest	Sport Fish Harvest	Total Utilization	10-Year Average
1960	5,969	18,887			24,856	
1961	18,918	28,934			47,852	
1962	15,341	13,582			28,923	
1963	12,016	34,482			46,498	
1964	17,149	29,017			46,166	
1965	21,989	24,697			46,686	
1966	25,545	49,325	285		75,155	
1967	29,986	59,913	766		90,665	
1968	34,278	32,942	608		67,828	
1969	43,997	40,617	833		85,447	56,008
1970	39,290	69,612	857		109,759	64,498
1971	40,274	43,242	756		84,272	68,140
1972	39,454	40,396	756		80,606	73,308
1973	32,838	39,093	577		72,508	75,909
1974	18,664	27,139	1,236		47,039	75,997
1975	22,135	48,448	704		71,287	78,457
1976	30,735	58,606	1,206		90,547	79,996
1977	35,830	56,580	1,264	33 [d]	93,707	80,300
1978	45,641	36,270	1,445	116 [d]	83,472	81,864
1979	38,966	56,283	979	74	96,302	82,950
1980	35,881	59,892	1,033	162	96,968	81,671
1981	47,663	61,329	1,218	189	110,399	84,284
1982	48,234	58,018	542	207	107,001	86,923
1983	33,174	47,412	1,139	420	82,145	87,887
1984	31,742	56,930	231	273	89,176	92,100
1985	37,889	43,874	79	85	81,927	93,164
1986	19,414	51,019	130	49	70,612	91,171
1987	36,179	67,325	384	355	104,243	92,225
1988	55,716	70,943 [c]	576	528	127,763	96,654
1989	43,217	81,176	543	1,218	126,154	99,639
1990	53,504	85,979	512	394	140,389	103,981
1991	37,778	85,554	117	401	123,850	105,326
1992	46,872	64,795	1,380	367	113,414	105,967
1993	8,735	87,512	2,483	587	99,317	107,685
1994	16,211	93,242	1,937	1,139	112,529	110,020
1995	30,846	96,436	1,421	541	129,244	114,752
1996	7,419	78,063	247	1,432	87,161	116,406
1997	10,441	81,577	332	1227	93,577	115,340
1998	17,359	81,265	210	1434	100,268	112,590
1999	4,705	73,194	98	252	78,249	107,800
2000	444	64,893	874	105	66,316	104,029
2001	90	73,610	86	290	74,076	98,000
10-Yr. Ave. (1991-2000)	18,081	80,653	910	749	100,393	109,991

[a] Districts 1 and 2; also includes harvests in District 3 from 1960 to 1965.

[b] Estimated subsistence harvest expanded from villages surveyed.

[c] Beginning in 1988, estimates are based on a new formula so data since 1988 is not comparable with previous years.

[d] Estimated by proportion.

Appendix B.4. Peak aerial survey counts of chinook salmon in indexed Kuskokwim River spawning tributaries, 1975 - 2001[a].

	Lower Kuskokwim				Middle Kuskokwim							Upper Kuskokwim	
Year	Eek	Kwethluk Canyon C.	Kisaralik	Tuluksak	Aniak	Kipchuk (Aniak)	Salmon (Aniak)	Holokuk	Oskawalik	Holitna	Kogrukluk Weir	Cheeneetnuk	Salmon (Pitka)
1975			118			94		17	71	1,114			
1976				139		177		126	204	2,571	5,579	1,197	1,146
1977		2,290		291			562	60	276			1,399	1,978
1978	1,613	1,732	2,417	403			289			2,766	13,667	267	1,127
1979		911						113			11,338		699
1980	2,378			725			1,186	250	123				1,177
1981		1,783	672		9,074		894				16,655		1,474
1982	230				2,645		185	42	120	521	10,993		419
1983	188	471	731	129	1,909		231	33	52	1,069		243	586
1984		273	157	93	1,409					299	4,926	1,177	577
1985	1,118	629		135				135	61		4,619	1,002	625
1986					909		336	100		850	5,038	381	
1987	1,739	975		60		193	516	208	193	813		317	
1988	2,255	766	840	188	945		244	57	80		8,506		501
1989	1,042	1,157	152		1,880	994	631				11,940		446
1990	1,983	1,295	631	166	1,255	537	596	143	113		10,218		
1991	1,312	1,002		342	1,564	885	583				7,850		
1992					2,284	670	335	64	91	1,822	6,755	1,050	2,555
1993					2,687	1,248	1,082	114	103	1,573	12,332	678	1,012
1994		848	1,021		1,848	1,520	1,218				15,227	1,206	1,010
1995			1,243		3,174	1,215	1,442	181	289	2,787	20,630	1,565	1,911
1996					3,496		983	85			14,199		
1997			439	173	2,187	855	980	322	1,470	2,093	13,280	345	
1998		27	457		2,239	353							
1999								18	98	741	5,570		
2000					714	182	152	42	62	501	3,181		
2001							598	52	158	4,247	9,298	217	1033
BEG	1,460[b]	**1,200[c]**	**1,000[c]**	**400[c]**	**1,500[c]**	670[b]	**600[c]**	107[b]	108[b]	**2,000[c]**	**10,000[c]**	1,002[b]	**1,300[c]**

a Estimates are from "peak" aerial surveys conducted between 20 and 31 July under fair, good, or excellent viewing conditions.
b Median of years 1975 through 1994.
c Formally established BEG (Buklis 1993).

Appendix B.5. Historical commercial salmon harvest in the Kuskokwim River, Districts 1 and 2 combined, 1960-2001[a]

Year	Chinook	Sockeye	Chum	Pink	Coho	Total
1960	5,969	0	0	0	2,498	8,467
1961	18,918	0	0	0	5,044	23,962
1962	15,341	0	0	0	12,432	27,773
1963	12,016	0	0	0	15,660	27,676
1964	17,149	0	0	0	28,613	45,762
1965	21,989	0	0	0	12,191	34,180
1966	25,545	0	0	0	22,985	48,530
1967	29,986	0	148	0	56,313	86,447
1968	34,278	0	187	0	127,306	161,771
1969	43,997	322	7,165	0	83,765	135,249
1970	39,290	117	1,664	44	38,601	79,716
1971	40,274	2,606	68,914	0	5,253	117,047
1972	39,454	102	78,619	8	22,579	140,762
1973	32,838	369	148,746	33	130,876	312,862
1974	18,664	136	171,887	84	147,269	338,040
1975	22,135	23	184,171	10	81,945	288,284
1976	30,735	2,971	177,864	133	88,501	300,204
1977	35,830	9,379	248,721	203	241,364	535,497
1978	45,641	733	248,656	5,832	213,393	514,255
1979	38,966	1,054	261,874	78	219,060	521,032
1980	35,881	360	483,211	803	222,012	742,267
1981	47,663	48,375	418,677	292	211,251	726,258
1982	48,234	33,154	278,306	1,748	447,117	808,559
1983	33,174	68,855	276,698	211	196,287	575,225
1984	31,742	48,575	423,718	2,942	623,447	1,130,424
1985	37,889	106,647	199,478	75	335,606	679,695
1986	19,414	95,433	309,213	3,422	659,988	1,087,470
1987	36,179	136,602	574,336	43	399,467	1,146,627
1988	55,716	92,025	1,381,674	10,825	524,296	2,064,536
1989	43,217	42,747	749,182	464	479,856	1,315,466
1990	53,504	84,870	461,624	3,397	410,332	1,013,727
1991	37,778	108,946	431,802	378	500,935	1,079,839
1992	46,872	92,218	344,603	7,451	666,170	1,157,314
1993	8,735	27,008	43,337	64	610,739	689,883
1994	16,211	49,365	271,115	30,949	724,689	1,092,329
1995	30,846	92,500	605,918	93	471,461	1,200,818
1996	7,419	33,878	207,877	1,621	937,299	1,188,094
1997	10,441	21,989	17,026	2	130,803	180,261
1998	17,359	60,906	207,809	92	210,481	496,647
1999	4,705	16,976	23,006	2	23,593	68,282
2000	444	4,130	11,570	7	261,379	277,530
2001	90	84	1,272	0	192,998	194,444
10-Year Average (1991-2000)	18,081	50,792	216,406	108 [b]	453,755	743,100

a Includes harvests in District 3 from 1960 to 1965.

b Odd years only.

Appendix B.6. Utilization of chum salmon in the Kuskokwim River, 1960-2001.

Year	Commercial Harvest[a]	Subsistence Harvest[b]	Test Fishery Harvest	Sport Fish Harvest	Total Utilization	Running 10-Year Average
1960	0	301,753 [c]			301,753	
1961	0	179,529 [c]			179,529	
1962	0	161,849 [c]			161,849	
1963	0	137,649 [c]			137,649	
1964	0	190,191 [c]			190,191	
1965	0	250,878 [c]			250,878	
1966	0	175,735 [c]	502 [d]		176,237	
1967	148	208,445 [c]	338		208,931	
1968	187	275,008 [c]	562		275,757	
1969	7,165	204,105 [c]	384		211,654	209,443
1970	1,664	246,810 [c]	1,139 [d]		249,613	204,229
1971	68,914	116,391 [c]	254		185,559	204,832
1972	78,619	120,316 [c]	486		199,421	208,589
1973	148,746	179,259 [c]	675		328,680	227,692
1974	171,887	277,170 [c]	2,021		451,078	253,781
1975	184,171	176,389 [c]	1,062		361,622	264,855
1976	177,864	223,792 [c]	2,101		403,757	287,607
1977	248,721	198,355 [c]	576	125 [f]	447,777	311,492
1978	248,656	118,809 [c]	2,153	555 [f]	370,173	320,933
1979	261,874	161,239 [c]	412	259 [f]	423,784	342,146
1980	483,751	165,172 [c]	2,058	324 [f]	651,305	382,316
1981	418,677	157,306 [c]	1,793	598 [f]	578,374	421,597
1982	278,306	190,011 [c]	504	1125 [f]	469,946	448,650
1983	276,698	146,876 [c]	1,069	922	425,565	458,338
1984	423,718	142,542 [c]	1,186	520	567,966	470,027
1985	199,478	94,750	616	150	294,994	463,364
1986	309,213	141,931 [c]	1,693	245	453,082	468,297
1987	574,336	70,709	2,302	566	647,913	488,310
1988	1,381,674	151,967 [e]	4,379	764	1,538,784	605,171
1989	749,182	139,687	2,082	2023	892,974	652,090
1990	461,624	126,508	2,107	533	590,772	646,037
1991	431,802	93,075	931	378	526,186	640,818
1992	344,603	96,491	15,330	608	457,032	639,527
1993	43,337	59,396	8,451	359	111,543	608,125
1994	271,115	72,025	11,998	1280	356,418	586,970
1995	605,918	67,862	17,473	226	691,479	626,618
1996	207,877	88,965	2,864	280	299,986	611,309
1997	17,026	39,970	790	86	57,872	552,305
1998	207,809	63,537	1,140	291	272,777	425,704
1999	23,006	43,601	562	180	67,349	343,141
2000	11,570	51,696	1,038	26	64,330	317,795
2001	1,272	49,874	1,743	112	53,001	268,907
10-Yr. Ave. (1991-2000)	216,406	67,662	6,058	371	290,497	535,231

[a] Districts 1 and 2 only; no chum harvests were reported in District 3.

[b] Estimated subsistence harvest expanded from villages surveyed.

[c] Includes small numbers of small chinook, sockeye and coho salmon.

[d] Includes small numbers of sockeye.

[e] Beginning in 1988, estimates are based on a new formula so data since 1988 is not comparable with previous years.

[f] Estimated based on proportion.

Appendix B.7. Historical commercial salmon catches by fishing period in Kuskokwim Area District 1, 1974-2001.

Year	Date		Number of Permits	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1974	Jun	10 - 11 [a]	422	12	4,384	0.9	1	0.0	153	0.0	0	0.0
	Jun	13 - 14 [a]	488	12	5,790	1.0	2	0.0	607	0.1	0	0.0
	Jun	17 - 18 [a]	506	12	5,857	1.0	62	0.0	1,394	0.2	0	0.0
	Jun	27 [b]	267	6	558	0.3	0	0.0	27,017	16.9	0	0.0
	Jul	01 - 02 [b]	380	12	561	0.1	26	0.0	55,356	12.1	0	0.0
	Jul	04 - 05 [b]	282	12	196	0.1	0	0.0	27,211	8.0	0	0.0
	Jul	08 - 09 [b]	376	12	286	0.1	1	0.0	50,672	11.2	0	0.0
	Jul	18 [b]	190	6	31	0.0	0	0.0	6,661	5.8	19	0.0
	Aug	01 - 02 [b]	267	12	17	0.0	9	0.0	813	0.3	9,576	3.0
	Aug	05 - 08 [b]	444	72	18	0.0	35	0.0	1,170	0.0	59,090	1.8
	Aug	12 - 15 [b]	396	72	12	0.0	0	0.0	103	0.0	58,066	2.0
	Aug	19 - 22 [b]	263	72	0	0.0	0	0.0	32	0.0	12,301	0.6
	Aug	26 - 29 [b]	107	72	1	0.0	0	0.0	10	0.0	5,360	0.7
	Sept	02 - 05 [b]	25	72	0	0.0	0	0.0	0	0.0	430	0.2
Total			666	456	17,711		136		171,199		144,842	
1975	Jun	16 [a]	12	6	359	4.99	0	0.0	3	0.0	0	0.0
	Jun	19 - 20 [a]	46	12	1,031	1.87	0	0.0	34	0.1	0	0.0
	Jun	23 - 24 [a]	483	12	17,235	2.97	0	0.0	3,792	0.7	0	0.0
	Jun	30 [b]	276	6	691	0.42	0	0.0	31,216	18.9	0	0.0
	Jul	03 [b]	360	6	636	0.29	0	0.0	35,525	16.4	0	0.0
	Jul	07 [b]	369	6	421	0.19	0	0.0	39,396	17.8	0	0.0
	Jul	10 [b]	304	6	195	0.11	0	0.0	39,910	21.9	0	0.0
	Jul	14 [b]	326	6	179	0.09	0	0.0	21,092	10.8	0	0.0
	Aug	01 [b]	142	6	5	0.01	0	0.0	2,113	2.5	2,357	2.8
	Aug	04 - 06 [b]	292	48	40	0.00	1	0.0	5,639	0.4	12,500	0.9
	Aug	11 - 13 [b]	373	48	8	0.00	0	0.0	2,247	0.1	18,551	1.0
	Aug	18 - 20 [b]	388	48	16	0.00	3	0.0	746	0.0	34,435	1.8
	Aug	25 - 27 [b]	270	48	0	0.00	0	0.0	73	0.0	16,277	1.3
Total			737	258	20,816		4		181,786		84,120	
1976	Jun	17 [a]	459	6	6,962	2.5	1	0.0	532	0.2	0	0.00
	Jun	21 [a]	495	6	13,048	4.4	0	0.0	2,543	0.9	0	0.00
	Jun	28 [b]	348	6	4,143	2.0	508	0.2	42,464	20.3	0	0.00
	Jul	01 [b]	415	6	1,550	0.6	338	0.1	44,024	17.7	0	0.00
	Jul	08 [b]	381	6	894	0.4	1,268	0.6	48,669	21.3	0	0.00
	Jul	12 [b]	344	6	344	0.2	701	0.3	21,153	9.4	0	0.00
	Jul	15 [b]	265	6	236	0.1	151	0.1	14,176	8.9	44	0.03
	Aug	02 - 03 [b]	286	24	83	0.0	0	0.0	2,067	0.3	10,534	1.53
	Aug	09 - 11 [b]	400	48	96	0.0	3	0.0	866	0.0	29,728	1.55
	Aug	16 - 18 [b]	387	48	50	0.0	1	0.0	154	0.0	28,664	1.54
	Aug	23 - 25 [b]	300	48	10	0.0	0	0.0	69	0.0	14,543	1.01
	Aug	30 - 31 [b]	174	42	2	0.0	0	0.00	10	0.0	4,420	0.60
Total			674	252	27,418		2,971		176,727		87,933	
1977	Jun	15 [a]	467	6	12,458	4.45	20	0.0	334	0.12	0	0.00
	Jun	20 [a]	484	6	16,227	5.59	18	0.0	1,715	0.59	0	0.00
	Jun	27 [b]	378	6	1,337	0.59	1,386	0.6	40,321	17.78	0	0.00
	Jun	30 [b]	409	6	504	0.21	3,655	1.5	58,884	24.00	0	0.00
	Jul	04 [b]	331	6	266	0.13	1,952	1.0	37,500	18.88	0	0.00
	Jul	07 [b]	368	6	407	0.18	1,799	0.8	56,943	25.79	0	0.00
	Jul	14 [b]	385	6	153	0.07	77	0.0	24,765	10.72	1	0.00
	Aug	01 - 02 [b]	360	24	91	0.01	392	0.0	7,157	0.83	23,987	2.78
	Aug	08 [b]	487	48	117	0.01	59	0.0	3,306	0.14	91,474	3.91
	Aug	15 - 16 [b]	438	24	57	0.01	4	0.0	1,161	0.11	60,935	5.80
	Aug	18 [b]	378	12	13	0.00	1	0.0	224	0.05	25,589	5.64
	Aug	22 [b]	361	12	12	0.00	6	0.0	202	0.05	16,980	3.92
	Aug	25 [b]	264	12	12	0.00	0	0.0	127	0.04	11,874	3.75
	Aug	29 [b]	204	12	5	0.00	0	0.0	42	0.02	6,819	2.79
Total			653	186	31,659		9,369		232,681		237,659	

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Year	Date		Number of Permits	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1978	Jun	09 [a]	509	6	7,590	2.49	10	0.0	734	0.24	0	0.00
	Jun	14 [a]	266	6	6,142	3.85	0	0.0	1,291	0.81	0	0.00
	Jun	16 [a]	396	6	12,341	5.19	22	0.0	5,950	2.50	0	0.00
	Jun	22 [a]	72	4	1,724	5.99	0	0.0	1,629	5.66	0	0.00
	Jun	23 [a]	429	4	8,342	4.86	0	0.0	12,587	7.34	0	0.00
	Jun	26 [b]	499	5	1,964	0.73	1	0.0	44,296	16.44	0	0.00
	Jun	29 [b]	422	6	1,759	0.66	52	0.0	36,793	13.87	0	0.00
	Jul	03 [b]	476	6	894	0.31	93	0.0	26,629	9.32	0	0.00
	Jul	06 [b]	485	12	1,460	0.25	302	0.1	48,031	8.25	0	0.00
	Jul	10 [b]	428	12	694	0.14	216	0.0	48,931	9.53	0	0.00
	Jul	13 [b]	422	6	293	0.12	0	0.0	14,935	5.90	0	0.00
	Aug	01 [b]	297	12	97	0.03	23	0.0	3,298	0.93	6,311	1.77
	Aug	04 [b]	364	12	79	0.02	6	0.0	906	0.21	9,445	2.16
	Aug	08 [b]	433	12	65	0.01	4	0.0	629	0.12	28,501	5.49
	Aug	11 [b]	485	12	39	0.01	2	0.0	280	0.05	42,428	7.29
	Aug	15 [b]	476	12	33	0.01	0	0.0	87	0.02	48,950	8.57
	Aug	18 [b]	434	12	16	0.00	2	0.0	67	0.01	29,485	5.66
	Aug	22 [b]	396	12	8	0.00	0	0.0	53	0.01	22,287	4.69
	Aug	25 [b]	293	12	12	0.00	0	0.0	13	0.00	11,168	3.18
	Aug	29 [b]	250	12	1	0.00	0	0.0	80	0.03	12,215	4.07
Total			723	182	43,553		733		247,219		210,790	
1979	Jun	11 [a]	523	6	12,270	3.91	14	0.00	462	0.15	0	0.00
	Jun	15 [a]	549	6	12,363	3.75	37	0.01	2,055	0.62	0	0.00
	Jun	22 [b]	502	6	5,651	1.88	50	0.02	32,295	10.72	0	0.00
	Jun	26 [b]	531	6	2,277	0.71	23	0.01	53,648	16.84	0	0.00
	Jun	29 [b]	542	6	1,583	0.49	8	0.00	48,643	14.96	0	0.00
	Jul	03 [b]	542	6	1,233	0.38	21	0.01	83,164	25.57	0	0.00
	Jul	10 [b]	520	6	470	0.15	23	0.01	32,434	10.40	0	0.00
	Aug	02 [b]	478	12	67	0.01	186	0.03	3,643	0.64	52,276	9.11
	Aug	06 [b]	480	6	38	0.01	54	0.02	1,148	0.40	53,797	18.68
	Aug	09 [b]	497	6	34	0.01	19	0.01	502	0.17	26,422	8.86
	Aug	13 [b]	463	6	20	0.01	11	0.00	179	0.06	27,915	10.05
	Aug	16 [b]	467	6	16	0.01	4	0.00	129	0.05	21,675	7.74
	Aug	20 [b]	390	6	23	0.01	7	0.00	104	0.04	19,445	8.31
	Aug	23 [b]	328	6	0	0.00	0	0.00	54	0.03	5,376	2.73
	Aug	27 [b]	310	12	6	0.00	2	0.00	40	0.01	6,342	1.70
	Aug	30 [b]	179	12	2	0.00	1	0.00	16	0.01	2,182	1.02
Total			685	114	36,053		460		258,516		215,430	
1980	Jun	12 [a]	469	6	9,891	3.51	2	0.00	711	0.25	0	0.00
	Jun	18 [a]	468	6	16,921	6.03	24	0.01	5,940	2.12	0	0.00
	Jun	23 [b]	426	6	4,777	1.83	0	0.00	105,825	40.45	0	0.00
	Jun	26 [b]	408	6	1,460	0.60	0	0.00	131,945	53.90	0	0.00
	Jul	02 [b]	383	6	498	0.22	23	0.01	122,613	53.36	0	0.00
	Jul	09 [b]	431	6	445	0.17	4	0.00	90,233	34.89	0	0.00
	Aug	04 [b]	375	6	54	0.02	73	0.03	2,697	1.20	9,889	4.40
	Aug	07 [b]	455	6	45	0.02	67	0.02	2,098	0.77	36,126	13.23
	Aug	11 [b]	482	6	33	0.01	64	0.02	4,350	1.50	35,178	12.16
	Aug	14 [b]	439	6	23	0.01	38	0.01	366	0.14	28,211	10.71
	Aug	18 [b]	441	6	12	0.00	25	0.01	179	0.07	43,748	16.53
	Aug	21 [b]	419	6	10	0.00	26	0.01	94	0.04	33,274	13.24
	Aug	25 [b]	370	6	12	0.01	9	0.00	64	0.03	19,264	8.68
	Aug	28 [b]	319	6	3	0.00	5	0.00	19	0.01	13,484	7.04
Total			663	84	34,184		360		467,134		219,174	

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Year	Date		Number of Permits	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1981	Jun	10 [a]	489	6	11,897	4.05	48	0.0	2,623	0.89	0	0.00
	Jun	16 [a]	541	6	17,985	5.54	316	0.1	11,501	3.54	0	0.00
	Jun	22 [b]	511	6	3,830	1.25	3,852	1.3	78,168	25.50	0	0.00
	Jun	25 [b]	508	6	2,000	0.66	6,037	2.0	81,431	26.72	0	0.00
	Jun	30 [b]	484	6	2,563	0.88	12,262	4.2	51,942	17.89	0	0.00
	Jul	02 [b]	459	6	1,707	0.62	9,769	3.5	58,594	21.28	0	0.00
	Jul	06 [b]	461	6	1,088	0.39	5,510	2.0	55,799	20.17	0	0.00
	Jul	09 [b]	440	6	941	0.36	7,760	2.9	66,138	25.05	0	0.00
	Aug	03 [b]	430	6	101	0.04	1,057	0.4	1,866	0.72	16,184	6.27
	Aug	06 [b]	441	6	77	0.03	674	0.3	1,046	0.40	13,885	5.25
	Aug	10 [b]	445	6	54	0.02	454	0.2	629	0.24	26,972	10.10
	Aug	13 [b]	473	6	54	0.02	233	0.1	448	0.16	46,252	16.30
	Aug	17 [b]	458	6	38	0.01	146	0.1	164	0.06	34,739	12.64
	Aug	20 [b]	380	6	17	0.01	55	0.0	73	0.03	24,184	10.61
	Aug	24 [b]	372	6	16	0.01	28	0.0	40	0.02	23,771	10.65
	Aug	27 [b]	346	6	16	0.01	25	0.0	59	0.03	13,785	6.64
	Aug	31 [b]	278	6	8	0.00	20	0.0	21	0.01	8,086	4.85
Total			679	102	42,011		45,554		410,542		207,858	
1982	Jun	14 [a]	464	6	4,912	1.76	321	0.12	2,532	0.91	0	0.00
	Jun	17 [a]	496	6	11,285	3.90	1,061	0.37	4,694	1.62	0	0.00
	Jun	21 [a]	499	6	13,343	4.46	2,432	0.81	10,003	3.34	0	0.00
	Jun	24 [a]	459	4	8,548	4.66	3,157	1.72	12,908	7.03	0	0.00
	Jun	28 [b]	352	4	1,943	1.38	9,938	7.06	58,528	41.57	0	0.00
	Jun	30 [b]	483	4	2,064	1.07	5,824	3.01	47,773	24.73	0	0.00
	Jul	02 [b]	434	4	1,095	0.63	3,110	1.79	38,918	22.42	0	0.00
	Jul	05 [b]	372	6	875	0.39	2,769	1.24	29,315	13.13	0	0.00
	Jul	08 [b]	435	6	748	0.29	1,786	0.68	28,942	11.09	2	0.00
	Jul	12 [b]	354	6	307	0.14	638	0.30	20,709	9.75	23	0.01
	Jul	29 [b]	416	6	114	0.05	48	0.02	2,599	1.04	19,561	7.84
	Aug	02 [b]	388	6	67	0.03	69	0.03	949	0.41	31,944	13.72
	Aug	05 [b]	445	6	47	0.02	26	0.01	624	0.23	35,766	13.40
	Aug	09 [b]	442	6	29	0.01	25	0.01	342	0.13	61,231	23.09
	Aug	12 [b]	449	6	26	0.01	6	0.00	189	0.07	80,685	29.95
	Aug	16 [b]	420	6	15	0.01	5	0.00	96	0.04	77,785	30.87
	Aug	19 [b]	403	6	12	0.00	12	0.00	69	0.03	49,566	20.50
	Aug	23 [b]	349	6	3	0.00	5	0.00	28	0.01	25,218	12.04
	Aug	26 [b]	314	6	9	0.00	0	0.00	18	0.01	26,761	14.20
	Aug	30 [b]	302	6	7	0.00	1	0.00	18	0.01	26,815	14.80
Total			686	112	45,120		31,233		259,254		435,357	
1983	Jun	13 [a]	489	6	7,445	2.54	114	0.04	829	0.28	0	0.00
	Jun	16 [a]	450	6	5,961	2.21	156	0.06	976	0.36	0	0.00
	Jun	20 [b]	474	6	4,776	1.68	3,289	1.16	28,915	10.17	0	0.00
	Jun	23 [b]	450	6	3,287	1.22	4,807	1.78	24,625	9.12	0	0.00
	Jun	27 [b]	446	6	2,566	0.96	10,465	3.91	44,802	16.74	0	0.00
	Jun	30 [b]	547	6	2,359	0.72	12,490	3.81	55,209	16.82	0	0.00
	Jul	04 [b]	443	6	1,213	0.46	24,540	9.23	46,176	17.37	0	0.00
	Jul	07 [b]	496	6	1,202	0.40	7,286	2.45	36,965	12.42	0	0.00
	Jul	11 [b]	466	6	633	0.23	3,001	1.07	20,560	7.35	0	0.00
	Aug	01 [b]	377	6	238	0.11	478	0.21	4,041	1.79	9,767	4.32
	Aug	04 [b]	430	6	237	0.09	272	0.11	2,580	1.00	15,389	5.96
	Aug	08 [b]	383	6	130	0.06	444	0.19	1,322	0.58	34,541	15.03
	Aug	11 [b]	485	6	96	0.03	146	0.05	534	0.18	35,268	12.12
	Aug	15 [b]	462	6	64	0.02	71	0.03	148	0.05	24,072	8.68
	Aug	18 [b]	408	6	56	0.02	52	0.02	111	0.05	22,822	9.32
	Aug	22 [b]	388	6	53	0.02	39	0.02	88	0.04	34,918	15.00
	Aug	26 [b]	323	6	27	0.01	31	0.02	55	0.03	19,039	9.82
Total			679	102	29,442		67,681		267,936		195,816	

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Year	Date		Number of Permits	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1984	Jun	18 [a]	484	6	10,845	3.73	409	0.14	5,803	2.00	0	0.0
	Jun	21 [a]	443	6	6,336	2.38	2,618	0.98	22,094	8.31	0	0.0
	Jun	25 [b]	466	6	3,018	1.08	10,743	3.84	91,773	32.82	0	0.0
	Jun	28 [b]	470	6	2,625	0.93	10,942	3.88	67,120	23.80	0	0.0
	Jul	02 [b]	483	6	1,988	0.69	8,145	2.81	69,897	24.12	0	0.0
	Jul	05 [b]	426	6	1,218	0.48	6,798	2.66	54,981	21.51	1	0.0
	Jul	09 [b]	496	6	1,211	0.41	2,821	0.95	36,440	12.24	52	0.0
	Jul	12 [b]	436	6	858	0.33	12/27	0.84	24,269	9.28	196	0.1
	Jul	16 [b]	373	6	744	0.33	1,121	0.50	18,613	8.32	619	0.3
	Jul	30 [b]	459	6	351	0.13	281	0.10	2,329	0.85	56,609	20.6
	Aug	02 [b]	401	6	291	0.12	157	0.07	1,184	0.49	79,240	32.9
	Aug	06 [b]	542	9	106	0.02	113	0.02	639	0.13	84,406	17.3
	Aug	09 [b]	523	9	106	0.02	111	0.02	373	0.08	80,990	17.2
	Aug	13 [b]	504	9	81	0.02	67	0.01	235	0.05	80,268	17.7
	Aug	16 [b]	502	9	50	0.01	29	0.01	131	0.03	78,342	17.3
	Aug	20 [b]	491	9	33	0.01	14	0.00	59	0.01	63,829	14.4
	Aug	23 [b]	481	9	21	0.00	11	0.00	63	0.01	49,372	11.4
	Aug	27 [b]	350	9	53	0.02	2	0.00	18	0.01	16,472	5.2
	Aug	30 [b]	210	9	9	0.00	1	0.00	5	0.00	11,222	5.9
	Sept	03 [b]	69	5	2	0.01	0	0.00	5	0.01	1,603	4.5
	Sept	06 [b]	39	6	0	0.00	0	0.00	0	0.00	1,877	8.0
Total			654	149	29,946		46,571		396,031		605,098	
1985	Jun	20	423	6	6,519	2.57	5,246	2.07	19,762	7.79	0	0.00
	Jun	24	488	6	10,413	3.56	25,536	8.72	42,778	14.61	0	0.00
	Jun	27	492	6	8,791	2.98	26,155	8.86	47,443	16.07	0	0.00
	Jul	1	514	6	6,168	2.00	31,082	10.08	47,471	15.39	0	0.00
	Jul	4	460	6	3,774	1.37	16,114	5.84	28,581	10.36	0	0.00
	Aug	01	487	6	204	0.07	174	0.06	2,470	0.85	34,052	11.65
	Aug	05	527	6	121	0.04	33	0.01	1,558	0.49	54,819	17.34
	Aug	08	525	6	58	0.02	3	0.00	472	0.15	78,149	24.81
	Aug	12	530	6	44	0.01	7	0.00	342	0.11	77,809	24.47
	Aug	15	441	6	28	0.01	0	0.00	193	0.07	28,013	10.59
	Aug	19	406	6	13	0.01	2	0.00	32	0.01	19,316	7.93
	Aug	22	390	6	10	0.00	0	0.00	56	0.02	17,534	7.49
	Aug	26	297	6	8	0.00	0	0.00	22	0.01	10,688	6.00
	Aug	29	262	6	8	0.01	1	0.00	28	0.02	9,568	6.09
Total			654	84	36,159		104,353		191,208		329,948	
1986	Jun	26	514	6	7,786	2.52	40,468	13.12	68,947	22.36	1	0.00
	Jun	30	576	6	4,200	1.22	22,633	6.55	60,780	17.59	0	0.00
	Jul	03	556	6	3,224	0.97	15,766	4.73	65,839	19.74	0	0.00
	Jul	07	586	6	1,805	0.51	8,347	2.37	55,983	15.92	0	0.00
	Jul	10	532	6	1,156	0.36	5,488	1.72	48,990	15.35	0	0.00
	Jul	31	352	6	60	0.03	219	0.10	2,239	1.06	27,553	13.05
	Aug	04	530	6	49	0.02	201	0.06	1,345	0.42	96,127	30.23
	Aug	07	600	9	66	0.01	38	0.01	50	0.01	127,024	23.52
	Aug	11	553	6	32	0.01	3	0.00	9	0.00	82,215	24.78
	Aug	13	526	6	32	0.01	2	0.00	3	0.00	92,918	29.44
	Aug	15	519	6	67	0.02	4	0.00	11	0.00	55,633	17.87
	Aug	18	477	6	15	0.01	4	0.00	0	0.00	51,328	17.93
	Aug	21	465	6	8	0.00	2	0.00	2	0.00	50,640	18.15
	Aug	25	458	6	4	0.00	0	0.00	0	0.00	37,365	13.60
	Aug	28	346	6	0	0.00	0	0.00	3	0.00	16,436	7.92
	Sept	01	234	6	6	0.00	0	0.00	0	0.00	5,949	4.24
Total			688	99	18,510		93,175		304,201		643,189	

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Year	Date	Number of Permits	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1987	Jun 18	526	9	19,126	4.04	9,508	2.01	14,137	2.99	0	0.00
	Jun 24	607	9	0 *	0.00	24,355	4.46	54,454	9.97	0	0.00
	Jun 30	564	9	0 *	0.00	39,112	7.71	112,963	22.25	0	0.00
	Jul 03	580	6	5,970	1.72	44,030	12.65	66,783	19.19	0	0.00
	Jul 07	578	6	3,636	1.05	9,196	2.65	103,059	29.72	0	0.00
	Jul 11	597	6	1,910	0.53	4,611	1.29	72,118	20.13	1	0.00
	Jul 15	569	6	1,415	0.41	2,301	0.67	71,923	21.07	10	0.00
	Jul 20	551	6	1,343	0.41	826	0.25	65,135	19.70	500	0.15
	Aug 06	590	6	207	0.06	271	0.08	4,074	1.15	49,182	13.89
	Aug 13	604	6	103	0.03	222	0.06	894	0.25	104,968	28.96
	Aug 17	595	6	76	0.02	133	0.04	378	0.11	73,867	20.69
	Aug 19	585	6	36	0.01	25	0.01	156	0.04	45,277	12.90
	Aug 21	540	6	26	0.01	16	0.00	140	0.04	33,601	10.37
	Aug 24	500	6	27	0.01	4	0.00	108	0.04	27,607	9.20
	Aug 27	479	6	13	0.00	9	0.00	70	0.02	21,772	7.58
	Aug 31	364	6	7	0.00	5	0.00	57	0.03	12,873	5.89
	Sept 03	278	6	8	0.00	3	0.00	31	0.02	11,352	6.81
	Sept 07	132	6	4	0.01	4	0.01	19	0.02	4,311	5.44
Total		703	117	33,907		134,631		566,499		385,321	
1988	Jun 16	602	8	12,640	2.62	7,408	1.54	72,219	15.00	0	0.00
	Jun 20	612	6	11,708	3.19	14,502	3.95	113,628	30.94	0	0.00
	Jun 24	644	6	9,710	2.51	19,894	5.15	119,808	31.01	0	0.00
	Jun 28	609	6	5,350	1.46	17,628	4.82	154,027	42.15	0	0.00
	Jul 02	580	6	3,531	1.01	15,102	4.34	187,916	54.00	0	0.00
	Jul 05	579	6	2,340	0.67	7,284	2.10	163,971	47.20	9	0.00
	Jul 08	604	6	1,891	0.52	3,623	1.00	138,772	38.29	1	0.00
	Jul 11	598	6	1,628	0.45	2,467	0.69	137,450	38.31	24	0.01
	Jul 14	597	6	1,751	0.49	822	0.23	116,930	32.64	141	0.04
	Jul 18	567	6	1,107	0.33	396	0.12	57,749	16.98	502	0.15
	Jul 21	539	6	621	0.19	164	0.05	39,643	12.26	1,278	0.40
	Jul 25	494	6	329	0.11	109	0.04	24,893	8.40	6,323	2.13
	Jul 28	552	6	333	0.10	70	0.02	16,028	4.84	20,970	6.33
	Aug 01	594	6	201	0.06	32	0.01	6,967	1.95	33,954	9.53
	Aug 04	639	6	206	0.05	105	0.03	5,152	1.34	76,576	19.97
	Aug 08	640	6	114	0.03	92	0.02	2,890	0.75	76,345	19.88
	Aug 10	596	6	73	0.02	9	0.00	1,376	0.38	53,874	15.07
	Aug 12	624	6	115	0.03	11	0.00	1,422	0.38	84,700	22.62
	Aug 15	613	6	76	0.02	14	0.00	663	0.18	59,724	16.24
	Aug 18	620	6	37	0.01	8	0.00	230	0.06	37,415	10.06
	Aug 20	577	6	29	0.01	5	0.00	121	0.03	24,046	6.95
	Aug 27	532	6	14	0.00	8	0.00	93	0.03	22,683	7.11
	Aug 31	408	6	6	0.00	11	0.00	34	0.01	9,852	4.02
Total		746	140	53,810		89,764		1,361,982		508,417	
1989	Jun 19	374	8	9,204	3.08	5,495	1.84	41,789	13.97	0	0.0
	Jun 23	277	8	6,011	2.71	7,011	3.16	65,650	29.63	0	0.0
	Jun 26	126	8	1,862	1.85	3,746	3.72	32,373	32.12	0	0.0
	Jun 30	642	8	9,232	1.80	10,214	1.99	131,629	25.63	0	0.0
	Jul 03	629	6	4,600	1.22	5,808	1.54	91,345	24.20	0	0.0
	Jul 05	553	6	3,311	1.00	2,917	0.88	85,727	25.84	3	0.0
	Jul 08	621	6	3,136	0.84	3,177	0.85	119,066	31.96	9	0.0
	Jul 11	616	6	1,691	0.46	1,565	0.42	78,053	21.12	126	0.0
	Jul 14	590	6	1,216	0.34	796	0.22	44,401	12.54	230	0.0
	Jul 18	437	6	868	0.33	451	0.17	26,407	10.07	2,216	0.1
	Jul 27	562	6	210	0.06	95	0.03	5,716	1.70	5,651	0.7
	Aug 03	679	6	174	0.04	30	0.01	3,615	0.89	99,022	24.3
	Aug 07	642	6	78	0.02	22	0.01	868	0.23	73,514	19.1
	Aug 09	644	6	40	0.01	7	0.00	432	0.11	103,158	26.7
	Aug 12	650	6	34	0.01	8	0.00	122	0.03	81,970	21.0
	Aug 15	616	6	25	0.01	4	0.00	119	0.03	23,071	6.2
	Aug 18	381	6	7	0.00	5	0.00	16	0.01	5,938	2.6
	Aug 23	528	6	19	0.01	14	0.00	21	0.01	30,940	9.8
	Aug 26	508	6	17	0.01	13	0.00	15	0.00	20,881	6.9
	Aug 29	423	6	7	0.00	9	0.00	21	0.01	11,080	4.4
	Sept 01	194	6	3	0.00	1	0.00	7	0.01	3,225	2.8
Total		745	134	41,745		41,388		727,392		461,034	

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Year	Date	Number of Permits	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1990	Jun 20	630	6	16,690	4.42	10,318	16.38	30,306	8.02	0	0.00
	Jun 25	611	6	16,031	4.37	27,024	44.23	58,944	16.08	0	0.00
	Jun 29	645	6	9,428	2.44	18,774	29.11	74,911	19.36	0	0.00
	Jul 05	591	6	4,071	1.15	10,759	18.20	86,835	24.49	0	0.00
	Jul 09	589	6	2,804	0.79	8,757	14.87	91,411	25.87	0	0.00
	Jul 14	625	8	2,127	0.43	5,467	8.75	79,803	15.96	70	0.01
	Aug 01	611	6	252	0.07	533	0.87	9,065	2.47	23,549	6.42
	Aug 06	631	6	306	0.08	133	0.21	4,597	1.21	61,450	16.23
	Aug 10	653	6	94	0.02	66	0.10	1,269	0.32	58,251	14.87
	Aug 13	642	6	38	0.01	48	0.07	509	0.13	115,444	29.97
	Aug 16	650	9	28	0.00	29	0.04	239	0.04	68,605	11.73
	Aug 20	594	6	11	0.00	34	0.06	113	0.03	51,838	14.54
	Aug 27	534	6	3	0.00	16	0.03	25	0.01	16,030	5.00
Total		743	83	51,883		81,958		438,027		395,237	
1991	Jun 20	601	6	13,813	3.83	19,732	5.47	13,266	3.68	0	0.00
	Jun 24	616	6	12,612	3.41	19,262	5.21	30,632	8.29	0	0.00
	Jul 01	629	6	5,966	1.58	24,428	6.47	50,121	13.28	0	0.00
	Jul 06	589	6	2,102	0.59	24,219	6.85	40,060	11.34	0	0.00
	Jul 13	571	6	904	0.26	6,458	1.88	52,552	15.34	16	0.00
	Jul 18	568	6	452	0.13	5,128	1.50	78,797	23.12	977	0.29
	Jul 22	543	6	233	0.07	3,085	0.95	49,788	15.28	2,655	0.81
	Jul 25	533	8	186	0.04	1,526	0.36	30,083	7.06	4,871	1.14
	Jul 29	534	8	134	0.03	732	0.17	24,026	5.62	37,141	8.69
	Aug 01	602	6	125	0.03	624	0.17	13,098	3.63	38,284	10.60
	Aug 05	643	8	56	0.01	96	0.02	6,091	1.18	56,262	10.94
	Aug 08	634	8	33	0.01	40	0.01	3,194	0.63	72,037	14.20
	Aug 12	662	8	42	0.01	31	0.01	1,586	0.30	114,581	21.64
	Aug 14	601	8	18	0.00	23	0.00	634	0.13	58,393	12.14
	Aug 19	590	6	24	0.01	24	0.01	313	0.09	57,364	16.20
	Aug 26	512	8	6	0.00	12	0.00	93	0.02	43,664	10.66
Total		749	110	36,706		105,420		394,334		486,245	
1992	Jun 18	567	8	9,756	2.15	8,508	1.88	32,695	7.21	0	0.00
	Jun 22	619	8	14,578	2.94	25,017	5.05	74,429	15.03	0	0.00
	Jun 25	627	8	8,984	1.79	21,922	4.37	55,114	10.99	0	0.00
	Jun 29	602	6	7,323	2.03	26,082	7.22	80,213	22.21	0	0.00
	Jul 06	587	8	3,250	0.69	7,962	1.70	84,196	17.93	2	0.00
	Aug 03	619	8	306	0.06	137	0.03	4,069	0.82	78,233	15.80
	Aug 06	590	6	116	0.03	98	0.03	1,319	0.37	57,506	16.24
	Aug 11	653	6	157	0.04	76	0.02	664	0.17	181,905	46.43
	Aug 14	632	6	63	0.02	55	0.01	196	0.05	87,959	23.20
	Aug 17	596	6	47	0.01	49	0.01	122	0.03	79,357	22.19
	Aug 20	578	6	36	0.01	17	0.00	53	0.02	73,363	21.15
	Aug 24	550	6	27	0.01	19	0.01	23	0.01	28,069	8.51
	Aug 27	481	6	26	0.01	6	0.00	26	0.01	28,238	9.78
	Aug 31	374	6	8	0.00	8	0.00	17	0.01	16,962	7.56
Total		741	94	44,677		89,956		333,136		631,594	
1993	Jun 25	622	8	8,184	1.64	26,363	5.30	34,123	6.86	0	0.00
	Jul 31	625	6	172	0.05	210	0.06	4,133	1.10	56,107	14.96
	Aug 04	656	6	98	0.02	141	0.04	2,080	0.53	137,649	34.97
	Aug 06	632	8	88	0.02	84	0.02	1,396	0.28	91,400	18.08
	Aug 09	628	6	65	0.02	75	0.02	446	0.12	54,817	14.55
	Aug 14	640	6	46	0.01	39	0.01	287	0.07	80,226	20.89
	Aug 17	620	6	30	0.01	31	0.01	119	0.03	82,696	22.23
	Aug 21	592	6	9	0.00	25	0.01	58	0.02	47,097	13.26
	Aug 25	441	6	6	0.00	13	0.00	28	0.01	10,556	3.99
	Aug 28	387	6	12	0.01	19	0.01	30	0.01	13,592	5.85
	Sept 01	274	6	4	0.00	3	0.00	18	0.01	12,190	7.41
Total		739	70	8,714		27,003		42,718		586,330	

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Year	Date	Number of Permits	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1994	Jun 24	576	8	14,221	3.09	38,958	8.45	87,214	18.93	0	0.00
	Jul 14	496	4	578	0.29	3,891	1.96	43,585	21.97	820	0.41
	Jul 19	500	6	441	0.15	4,475	1.49	60,104	20.03	7,027	2.34
	Jul 23	506	6	313	0.10	1,125	0.37	38,149	12.57	24,213	7.98
	Jul 26	552	6	225	0.09	471	0.14	22,460	6.78	39,901	12.05
	Jul 29	577	6	204	0.06	159	0.05	11,252	3.25	52,090	15.05
	Aug 04	606	6	88	0.06	87	0.02	3,983	1.10	75,514	20.77
	Aug 09	530	6	29	0.03	70	0.02	1,153	0.36	129,570	40.75
	Aug 12	606	8	34	0.01	47	0.01	777	0.16	117,753	24.29
	Aug 15	595	8	22	0.01	33	0.01	321	0.07	47,902	10.06
	Aug 18	598	8	20	0.00	16	0.00	212	0.04	82,750	17.30
	Aug 22	554	8	12	0.00	15	0.00	104	0.02	44,054	9.94
	Aug 25	447	8	9	0.00	7	0.00	63	0.02	37,595	10.51
	Aug 27	445	6	3	0.00	4	0.00	30	0.01	20,526	7.69
	Aug 30	263	6	2	0.00	2	0.00	16	0.01	8,192	5.19
	Sept 02	157	6			2	0.00	3	0.00	2,489	2.64
Total		706	106	16,201		49,362		269,426		690,396	
1995	Jun 22	569	4	6,895	3.03	4,420	1.94	49,157	21.60	0	0.00
	Jun 26	568	4	9,452	4.16	19,449	8.56	93,152	41.00	0	0.00
	Jun 29	565	4	4,972	2.20	18,188	8.05	83,580	36.98	0	0.00
	Jul 03	475	4	2,847	1.50	17,078	8.99	89,427	47.07	0	0.00
	Jul 06	481	4	1,521	0.79	14,765	7.67	81,246	42.23	0	0.00
	Jul 10	494	4	906	0.46	7,100	3.59	86,368	43.71	21	0.01
	Jul 14	435	4	546	0.31	4,219	2.42	43,137	24.79	221	0.13
	Jul 18	336	6	366	0.18	2,482	1.23	37,294	18.50	671	0.33
	Jul 21	368	4	202	0.14	940	0.64	21,039	14.29	1,272	0.86
	Aug 04	234	6	64	0.05	123	0.09	1,072	0.76	48,665	34.66
	Aug 08	611	6	95	0.03	363	0.10	1,229	0.34	98,548	26.88
	Aug 12	617	6	50	0.01	359	0.10	899	0.24	102,421	27.67
	Aug 16	593	6	52	0.01	147	0.04	208	0.06	65,713	18.47
	Aug 19	555	6	28	0.01	87	0.03	133	0.04	41,057	12.33
	Aug 22	497	6	16	0.01	113	0.04	157	0.05	43,978	14.75
	Aug 26	477	6	25	0.01	117	0.04	101	0.04	29,129	10.18
	Aug 29	355	6	15	0.01	45	0.02	39	0.02	17,790	8.35
	Sept 01	219	6	2	0.00	31	0.02	12	0.01	5,783	4.40
Total		712	92	28,054		90,026		588,250		455,269	
1996	Jun 17	245	2	2,045	4.17	1,850	3.78	11,560	23.59	0	0.00
	Jun 20	283	2	2,046	3.61	6,423	11.35	27,442	48.48	0	0.00
	Jun 24	240	1.5	666	1.85	4,420	12.28	19,438	53.99	0	0.00
	Jul 02	224	2	545	1.22	3,962	8.84	20,915	46.69	0	0.00
	Jul 05	194	2	316	0.81	3,481	8.97	17,651	45.49	2	0.01
	Jul 08	211	2	178	0.42	6,795	16.10	18,801	44.55	24	0.06
	Jul 12	237	2	230	0.49	3,781	7.98	26,468	55.84	1,608	3.39
	Jul 16	197	2	87	0.22	602	1.53	15,192	38.56	4,675	11.87
	Jul 19	267	3	164	0.20	298	0.37	13,390	16.72	14,746	18.41
	Jul 22	417	6	183	0.07	639	0.26	14,504	5.80	50,443	20.16
	Jul 25	487	8	124	0.03	256	0.07	9,024	2.32	113,637	29.17
	Jul 29	526	6	97	0.03	186	0.06	3,828	1.21	144,773	45.87
	Jul 31	464	6	52	0.02	92	0.03	1,541	0.55	122,946	44.16
	Aug 03	541	6	59	0.02	129	0.04	1,097	0.34	132,540	40.83
	Aug 07	514	6	43	0.01	73	0.02	581	0.19	94,332	30.59
	Aug 10	502	6	45	0.01	60	0.02	797	0.26	83,653	27.77
	Aug 13	471	6	25	0.01	82	0.03	296	0.10	70,053	24.79
	Aug 16	459	6	28	0.01	147	0.05	215	0.08	49,012	17.80
	Aug 20	400	6	19	0.01	83	0.03	51	0.02	25,870	10.78
	Aug 23	293	6	9	0.01	22	0.01	23	0.01	13,133	7.47
	Aug 26	209	6	11	0.01	23	0.02	13	0.01	8,684	6.93
Total		620	92.5	6,972		33,404		202,827		930,131	
1997	Jun 23	353	6	10,023	4.73	21,218	10.02	13,090	6.18	0	0.00
	Jul 31	429	6	141	0.05	352	0.14	2,060	0.80	14,963	5.81
	Aug 6	513	6	145	0.05	229	0.07	1,387	0.45	37,216	12.09
	Aug 12	507	6	61	0.02	122	0.04	408	0.13	56,149	18.46
	Aug 18	475	6	66	0.02	67	0.02	58	0.02	21,273	7.46
Total		604	30	10,436		21,988		17,003		129,601	

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Year	Date	Number of Permits	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1998	Jun 24	338	6	6,413	3.16	9,043	4.46	32,467	16.01		
	Jun 29	426	6	6,358	2.49	22,506	8.81	66,789	26.13		
	Jul 03	445	4	2,277	1.28	15,985	8.98	51,471	28.92	1	0.00
	Jul 11	417	4	1,127	0.68	10,172	6.10	29,407	17.63	23	0.01
	Jul 22	346	6	460	0.22	1,538	0.74	15,663	7.54	3,633	1.75
	Jul 27	370	6	356	0.16	932	0.42	7,500	3.38	18,497	8.33
	Aug 01	425	6	156	0.06	235	0.09	2,787	1.09	26,791	10.51
	Aug 06	496	6	88	0.03	295	0.10	1,020	0.34	45,128	15.16
	Aug 11	464	6	67	0.02	95	0.03	388	0.14	58,426	20.99
	Aug 17	439	6	34	0.01	45	0.02	122	0.05	34,640	13.15
	Aug 22	382	6	19	0.01	53	0.02	67	0.03	18,936	8.26
	Aug 29	154	6	1	0.00	7	0.01	17	0.02	4,093	4.43
Total		615	68	17,356		60,906		207,698		210,168	
1999	Jun 30	409	6	4,668	1.90	16,772	6.83	22,700	9.25		
	Aug 7	389	6	37	0.02	204	0.09	306	0.13	23,593	10.1
Total		509	12	4,705		16,976		23,006		23,593	
2000	July 05 [d]	224	4	357	0.40	3,658	4.08	11,026	12.31		
	Aug 01 [d]	248	6	12	0.01	94	0.06	156	0.10	25,642	17.2
	Aug 04 [e]	123	6	7	0.01	7	0.01	53	0.07	50,260	68.1
	Aug 05 [d]	270	6	8	0.00	73	0.05	43	0.03	32,056	19.8
	Aug 08 [e]	186	6	9	0.01	26	0.02	55	0.05	26,771	24.0
	Aug 09 [d]	217	6	13	0.01	57	0.04	128	0.10	20,905	16.1
	Aug 12 [e]	189	6	12	0.01	17	0.01	23	0.02	37,451	33.0
	Aug 14 [d]	224	6	6	0.00	75	0.06	33	0.02	16,766	12.5
	Aug 14 [e]	193	6	5	0.00	23	0.02	15	0.01	17,916	15.5
	Aug 18 [d]	199	6	6	0.01	58	0.05	16	0.01	14,697	12.3
	Aug 21 [e]	158	6	4	0.00	3	0.00	10	0.01	8,577	9.0
	Aug 22 [d]	143	6	1	0.00	32	0.04	4	0.00	4,489	5.2
	Aug 25	106	6	4	0.01	7	0.01	8	0.01	4,191	6.6
Total		532	76	444		4,130		11,570		259,721	
2001	Aug 03 [d]	144	4	9	0.02	22	0.04	347	0.60	17,174	29.8
	Aug 06 [e]	108	4	8	0.02	5	0.01	101	0.23	20,089	46.5
	Aug 08	262	6	23	0.01	11	0.01	356	0.23	46,369	29.5
	Aug 11 [e]	175	6	20	0.02	10	0.01	218	0.21	41,643	39.7
	Aug 13 [d]	143	4	5	0.01	4	0.01	37	0.06	9,647	16.9
	Aug 15	296	6	5	0.00	15	0.01	122	0.07	28,893	16.3
	Aug 17	259	6	12	0.01	9	0.01	65	0.04	11,064	7.1
	Aug 20	149	6	6	0.01	5	0.01	17	0.02	5,440	6.1
	Aug 22	149	6	0	0.00	3	0.00	4	0.00	8,149	9.1
	Aug 25	118	6	2	0.00	0	0.00	5	0.01	4,530	6.4
Total		412	54	90		84		1,272		192,998	

[a] Gillnet mesh size unrestricted.

[b] Gillnets were restricted to 6 inches or less; after 1985 this restriction was in effect for all periods.

[c] Sales of chinook salmon were prohibited. Estimated chinook harvest was between 12,119 and 13,615 on 6/24 and between 5,831 and 6,555 on 6/25.

[d] Subdistrict W-1B (below Bethel) opening

[e] Subdistrict W-1A (above Bethel) opening

Appendix B.8. Historical commercial salmon catches by fishing period in Kuskokwim Area District 2, 1974-2001.

Year	Date	Number of Permits	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1974	Jun 10 - 14 [a]	26	96	549	0.2	0	0.0	16	0.0	0	0.00
	Jun 17 - 19 [a]	29	48	402	0.3	0	0.0	451	0.3	0	0.00
	Aug 5 - 9 [a]	14	96	2	0.0	0	0.0	210	0.2	990	0.7
	Aug 12 - 13 [a]	13	24	0	0.0	0	0.0	11	0.0	1,428	4.6
Total		**37**	**264**	**953**		**0**		**688**		**2,418**	
1975	Jun 23 - 27 [a]	38	96	1,319	0.4	0	0.0	2,385	0.7	0	0.00
Total		**38**	**96**	**1,319**		**0**		**2,385**		**0**	
1976	Jun 21 - 24 [a]	55	66	3,316	0.9	0	0.0	1,136	0.3	0	0.00
	Aug 23 - 25 [a]	11	24	1	0.0	0	0.0	1	0.0	568	2.15
Total		**57**	**90**	**3,317**		**0**		**1,137**		**568**	
1977	Jun 20 - 21 [a]	83	30	3,975	1.6	0	0.0	756	0.3	0	0.00
	Jul 4 [a]	54	12	195	0.3	10	0.0	15,160	23.4	0	0.00
	Aug 8 [a]	24	12	1	0.0	0	0.0	124	0.4	3,705	12.86
Total		**105**	**54**	**4,171**		**10**		**16,040**		**3,705**	
1978	Jun 14 [a]	8	6	359	7.5	0	0.0	59	1.2	0	0.0
	Jun 16 [a]	13	6	424	5.4	0	0.0	189	2.4	0	0.0
	Jun 22 [a]	9	4	411	11.4	0	0.0	377	10.5	0	0.0
	Jun 23 [a]	24	4	893	9.3	0	0.0	804	8.4	0	0.0
	Aug 18 [b]	3	12	0	0.0	0	0.0	0	0.0	257	7.14
	Aug 22 [b]	17	12	1	0.0	0	0.0	8	0.0	2,346	11.50
Total		**43**	**44**	**2,088**		**0**		**1,437**		**2,603**	
1979	Jun 21 [a]	29	12	1,030	3.0	142	0.4	982	2.8	0	0.00
	Jun 25 [a]	33	12	1,883	4.8	452	1.1	1,946	4.9	0	0.00
	Aug 13 [b]	20	12	0	0.0	0	0.0	430	1.8	3,630	15.13
Total		**43**	**36**	**2,913**		**594**		**3,358**		**3,630**	
1980	Jun 23 [a]	37	12	1,482	3.3	0	0.0	4,004	9.0	0	0.00
	Jul 09 [b]	21	6	215	1.7	0	0.0	11,911	94.5	0	0.00
	Aug 14 [b]	12	12	0	0.0	0	0.0	702	4.9	2,868	19.92
Total		**43**	**30**	**1,697**		**0**		**16,617**		**2,868**	
1981	Jun 16 [a]	18	6	933	8.6	4	0.0	810	7.5	0	0.00
	Jun 19 [a]	151	6	3,838	4.2	125	0.1	3,902	4.3	0	0.00
	Jun 25 [b]	11	6	499	7.6	0	0.0	3,329	50.4	0	0.00
	Aug 17 [b]	15	6	0	0.0	0	0.0	62	0.7	1,487	16.52
	Aug 20 [b]	13	6	1	0.0	0	0.0	32	0.4	1,896	24.31
Total		**153**	**30**	**5,271**		**129**		**8,135**		**3,383**	
1982	Jun 17 [a]	10	6	222	3.7	19	0.3	274	4.6	0	0.00
	Jun 21 [a]	23	6	769	5.6	53	0.4	817	5.9	0	0.00
	Jun 24 [a]	35	6	1,122	5.3	434	2.1	1,912	9.1	0	0.00
	Jul 2 [b]	24	6	271	1.9	607	4.2	7,060	49.0	0	0.00
	Jul 5 [b]	47	6	398	1.4	808	2.9	8,811	31.2	0	0.00
	Aug 9 [b]	15	6	2	0.0	0	0.0	144	1.6	1,841	20.46
	Aug 16 [b]	13	6	0	0.0	0	0.0	29	0.4	4,567	58.55
	Aug 19 [b]	21	6	1	0.0	0	0.0	5	0.0	5,352	42.48
Total		**60**	**48**	**2,785**		**1,921**		**19,052**		**11,760**	
1983	Jun 16 [a]	14	6	510	6.1	13	0.2	165	2.0	0	0.00
	Jun 20 [b]	28	6	746	4.4	86	0.5	2,069	12.3	0	0.00
	Jun 23 [b]	34	6	820	4.0	338	1.7	2,154	10.6	0	0.00
	Jun 27 [b]	33	6	755	3.8	736	3.7	4,276	21.6	0	0.00
	Aug 11 [b]	9	6	0	0.0	1	0.0	98	1.8	471	8.72
	Aug 15 [b]	0	6	0	0.0	0	0.0	0	0.0	0	0.00
	Aug 18 [b]	0	6	0	0.0	0	0.0	0	0.0	0	0.00
Total		**43**	**42**	**2,831**		**1,174**		**8,762**		**471**	

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Year	Date	Number of Permits	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1984	Jun 21 [a]	15	6	561	6.23	84	0.93	967	10.74	0	0.00
	Jun 25 [b]	25	6	493	3.29	543	3.62	5,705	38.03	0	0.00
	Jun 28 [b]	33	6	524	2.65	395	1.99	13,376	67.56	0	0.00
	Jul 2 [b]	25	6	204	1.36	982	6.55	7,420	49.47	0	0.00
	Aug 06 [b]	16	6	9	0.09	0	0.00	110	1.15	4,339	45.20
	Aug 09 [b]	11	6	1	0.02	0	0.00	69	1.05	4,340	65.76
	Aug 13 [b]	12	6	1	0.01	0	0.00	24	0.33	2,792	38.78
	Aug 16 [b]	17	6	1	0.01	0	0.00	16	0.16	3,652	35.80
	Aug 20 [b]	13	6	1	0.01	0	0.00	0	0.00	2,179	27.94
	Aug 23 [b]	8	6	0	0.00	0	0.00	0	0.00	1,047	21.81
	Aug 27 [b]	0	6	0	0.00	0	0.00	0	0.00	0	0.00
	Aug 30 [b]	0	6	0	0.00	0	0.00	0	0.00	0	0.00
Total		**58**	**72**	**1,795**		**2,004**		**27,687**		**18,349**	
1985	Jun 20	8	6	136	2.83	115	2.40	647	13.48	0	0.00
	Jun 24	11	6	263	3.98	340	5.15	2,411	36.53	0	0.00
	Jun 27	12	6	548	7.61	739	10.26	2,263	31.43	0	0.00
	Jul 1	15	6	779	8.66	1,100	12.22	2,854	31.71	0	0.00
	Jul 4	0	6	0	0.00	0	0.00	0	0.00	0	0.00
	Aug 08	6	6	0	0.00	0	0.00	41	1.14	739	20.53
	Aug 12	14	6	3	0.04	0	0.00	45	0.54	2,914	34.69
	Aug 15	11	6	1	0.02	0	0.00	9	0.14	2,005	30.38
Total		**23**	**48**	**1,730**		**2,294**		**8,270**		**5,658**	
1986	Jun 26	3	6	186	10.33	616	34.22	439	24.39	0	0.00
	Jun 30	13	6	386	4.95	1,171	15.01	1,619	20.76	0	0.00
	Jul 3	8	6	168	3.50	265	5.52	1,249	26.02	0	0.00
	Jul 7	2	6	117	9.75	26	2.17	387	32.25	0	0.00
	Jul 10	6	6	45	1.25	179	4.97	1,282	35.61	0	0.00
	Aug 07	8	6	0	0.00	0	0.00	0	0.00	2,445	50.94
	Aug 11	10	6	0	0.00	0	0.00	23	0.38	2,677	44.62
	Aug 13	10	6	0	0.00	1	0.02	13	0.22	2,787	46.45
	Aug 15	27	6	1	0.01	0	0.00	0	0.00	5,761	35.56
	Aug 18	8	6	1	0.02	0	0.00	0	0.00	1,804	37.58
	Aug 21	6	6	0	0.00	0	0.00	0	0.00	1,325	36.81
Total		**43**	**66**	**904**		**2,258**		**5,012**		**16,799**	
1987	Jul 03	15	6	1,325	14.72	511	5.68	3,200	35.56	0	0.00
	Jul 07	22	6	935	7.08	1,459	11.05	4,152	31.45	0	0.00
	Aug 13	14	6	4	0.05	1	0.01	304	3.62	2,273	27.06
	Aug 17	14	6	6	0.07	0	0.00	102	1.21	3,374	40.17
	Aug 19	13	6	1	0.01	0	0.00	39	0.50	3,928	50.36
	Aug 21	18	6	1	0.01	0	0.00	40	0.37	4,571	42.32
Total		**29**	**36**	**2,272**		**1,971**		**7,837**		**14,146**	
1988	Jun 24	13	6	669	8.58	1,041	13.35	4,232	54.26	0	0.00
	Jun 28	17	6	746	7.31	639	6.26	6,087	59.68	0	0.00
	Jul 2	19	6	468	4.11	579	5.08	8,155	71.54	0	0.00
	Aug 08	14	6	6	0.07	0	0.00	308	3.67	1,465	17.44
	Aug 10	16	6	10	0.10	0	0.00	312	3.25	3,823	39.82
	Aug 12	20	6	3	0.03	2	0.02	244	2.03	5,216	43.47
	Aug 15	21	6	1	0.01	0	0.00	144	1.14	2,317	18.39
	Aug 18	15	6	2	0.02	0	0.00	116	1.29	1,485	16.50
	Aug 20	17	6	1	0.01	0	0.00	94	0.92	1,573	15.42
Total		**29**	**54**	**1,906**		**2,261**		**19,692**		**15,879**	

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Appendix B.8 (page 3 of 4)

Year		Date	Number of Permits	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1989	Jun	30	15	8	610	5.08	587	4.89	7,353	61.28	0	0.0
	Jul	03	18	6	371	3.44	238	2.20	5,101	47.23	0	0.0
	Jul	05	14	6	264	3.14	176	2.10	3,542	42.17	0	0.0
	Jul	11	14	6	128	1.52	95	1.13	4,580	54.52	0	0.0
	Aug	07	22	6	3	0.02	0	0.00	238	1.80	6,607	50.1
	Aug	09	18	6	3	0.03	0	0.00	114	1.06	5,714	52.9
	Aug	15	15	6	1	0.01	0	0.00	7	0.08	1,867	20.7
	Aug	18	20	6	3	0.03	0	0.00	11	0.09	2,733	22.8
Total			**30**	**50**	**1,383**		**1,096**		**20,946**		**16,921**	
1990	Jun	29	14	6	641	7.63	735	8.75	3,838	45.69	0	0.0
	Jul	05	15	6	467	5.19	561	6.23	4,397	48.86	0	0.0
	Jul	09	17	6	255	2.50	580	5.69	5,163	50.62	0	0.0
	Jul	14	17	8	209	1.54	567	4.17	6,999	51.46	0	0.00
	Aug	06	15	6	21	0.23	5	0.06	742	8.24	1,111	12.34
	Aug	10	15	6	17	0.19	5	0.06	550	6.11	1,946	21.62
	Aug	13	16	6	4	0.04	1	0.01	276	2.88	4,192	43.67
	Aug	16	17	9	6	0.04	0	0.00	105	0.69	2,239	14.63
	Aug	20	18	6	0	0.00	0	0.00	12	0.11	2,548	23.59
	Aug	27	17	6	1	0.01	3	0.03	3	0.03	1,780	17.45
Total			**22**	**65**	**1,621**		**2,457**		**22,085**		**13,816**	
1991	Jul	01	17	6	483	4.74	1,200	11.76	3,043	29.83	0	0.0
	Jul	06	16	6	341	3.55	613	6.39	2,381	24.80	0	0.0
	Jul	13	18	6	112	1.04	981	9.08	4,384	40.59	0	0.00
	Jul	18	17	6	49	0.48	365	3.58	6,534	64.06	0	0.00
	Jul	22	19	6	28	0.25	117	1.03	7,154	62.75	17	0.15
	Jul	25	17	8	20	0.15	177	1.30	7,686	56.51	115	0.85
	Jul	29	16	8	21	0.16	70	0.55	3,452	26.97	177	1.38
	Aug	05	17	8	6	0.04	0	0.00	1,245	9.15	1,596	11.74
	Aug	08	17	8	4	0.03	3	0.02	835	6.14	2,381	17.51
	Aug	12	16	8	2	0.02	0	0.00	340	2.66	1,829	14.29
	Aug	14	15	8	4	0.03	0	0.00	227	1.89	2,461	20.51
	Aug	19	19	6	2	0.02	0	0.00	138	1.21	1,689	14.82
	Aug	26	16	8	0	0.00	0	0.00	49	0.38	4,425	34.57
Total			**23**	**92**	**1,072**		**3,526**		**37,468**		**14,690**	
1992	Jun	25	16	8	1,021	7.98	930	7.27	3,916	30.59	0	0.00
	Jun	29	15	6	815	9.06	525	5.83	2,439	27.10	0	0.00
	Jul	6	9	8	310	4.31	486	6.75	2,840	39.44	0	0.00
	Aug	03	17	8	27	0.20	317	2.33	1,440	10.59	5,106	37.54
	Aug	06	17	6	11	0.11	1	0.01	536	5.25	3,832	37.57
	Aug	11	19	6	7	0.06	1	0.01	136	1.19	3,837	33.66
	Aug	14	21	6	0	0.00	1	0.01	70	0.56	8,216	65.21
	Aug	17	16	6	0	0.00	0	0.00	24	0.25	5,685	59.22
	Aug	20	14	6	1	0.01	0	0.00	43	0.51	2,682	31.93
	Aug	24	14	6	3	0.04	1	0.01	17	0.20	2,827	33.65
	Aug	27	11	6	0	0.00	0	0.00	5	0.08	1,238	18.76
	Aug	31	11	6	0	0.00	0	0.00	1	0.02	1,153	17.47
Total			**22**	**78**	**2,195**		**2,262**		**11,467**		**34,576**	
1993	Aug	06	15	8	9	0.08	2	0.02	303	2.53	6,828	56.90
	Aug	09	17	6	4	0.04	1	0.01	153	1.50	3,839	37.64
	Aug	14	17	6	3	0.03	1	0.01	70	0.69	2,681	26.28
	Aug	17	16	6	3	0.03	0	0.00	23	0.24	2,349	24.47
	Aug	21	17	6	0	0.00	0	0.00	26	0.25	3,115	30.54
	Aug	25	15	6	0	0.00	1	0.01	24	0.27	3,008	33.42
	Aug	28	14	6	1	0.01	0	0.00	11	0.13	1,798	21.40
	Sept	01	13	6	1	0.01	0	0.00	9	0.12	791	10.14
Total			**20**	**50**	**21**		**5**		**619**		**24,409**	

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Appendix B.8 (page 4 of 4)

Year	Date	Number of Permits	Hours Fished	Chinook Catch	Chinook CPUE	Sockeye Catch	Sockeye CPUE	Chum Catch	Chum CPUE	Coho Catch	Coho CPUE
1994	Aug 04	14	6	6	0.07	0	0.00	808	9.62	4,040	48.10
	Aug 09	17	6	3	0.03	0	0.00	350	3.43	5,790	56.76
	Aug 12	17	8	0	0.00	0	0.00	226	1.66	10,539	77.49
	Aug 15	16	8	0	0.00	1	0.01	151	1.18	7,190	56.17
	Aug 18	15	8	1	0.01	0	0.00	106	0.88	2,710	22.58
	Aug 22	12	8	0	0.00	1	0.01	34	0.35	1,855	19.32
	Aug 25	7	8	0	0.00	0	0.00	12	0.21	1,492	26.64
	Aug 27	6	6	0	0.00	1	0.03	2	0.06	677	18.81
Total		**20**	**58**	**10**		**3**		**1,689**		**34,293**	
1995	Jun 26	16	4	1,656	25.88	535	8.36	3,628	56.69	0	0.00
	Jun 29	13	4	707	13.60	620	11.92	3,577	68.79	0	0.00
	Jul 03	9	4	284	7.89	456	12.67	2,200	61.11	0	0.00
	Jul 06	8	4	74	2.31	331	10.34	2,372	74.13	0	0.00
	Jul 10	6	4	32	1.33	293	12.21	1,874	78.08	0	0.00
	Jul 14	2	4	7	0.88	51	6.38	480	60.00	0	0.00
	Jul 18	6	6	9	0.25	44	1.22	1,638	45.50	6	0.17
	Jul 21	5	4	4	0.20	132	6.60	899	44.95	13	0.65
	Aug 04	6	6	10	0.28	4	0.11	484	13.44	1,321	36.69
	Aug 08	9	6	2	0.04	6	0.11	379	7.02	2,816	52.15
	Aug 12	8	6	5	0.10	1	0.02	79	1.65	2,643	55.06
	Aug 16	12	6	1	0.01	0	0.00	41	0.57	4,398	61.08
	Aug 19	5	6	1	0.03	0	0.00	4	0.13	1,679	55.97
	Aug 22	8	6	0	0.00	1	0.02	9	0.19	1,750	36.46
	Aug 26	3	6	0	0.00	0	0.00	0	0.00	712	39.56
	Aug 29	3	6	0	0.00	0	0.00	4	0.22	660	36.67
	Sept 01	1	6	0	0.00	0	0.00	0	0.00	194	32.33
Total		**21**	**88**	**2,792**		**2,474**		**17,668**		**16,192**	
1996	Jun 24	6	2	145	12.08	69	5.75	613	51.08	0	0.00
	Jul 2	4	2	175	21.88	109	13.63	376	47.00	0	0.00
	Jul 5	3	2	8	1.33	38	6.33	606	101.00	0	0.00
	Jul 8	4	4	42	2.63	92	5.75	877	54.81	0	0.00
	Jul 12	4	4	60	3.75	56	3.50	758	47.38	0	0.00
	Jul 16	1	4	5	1.25	33	8.25	336	84.00	3	0.75
	Jul 19	3	4	9	0.75	9	0.75	444	37.00	51	4.25
	Jul 22	2	6	0	0.00	6	0.50	414	34.50	234	19.50
	Jul 25	3	8	2	0.08	5	0.21	367	15.29	700	29.17
	Jul 29	2	6	1	0.08	2	0.17	98	8.17	668	55.67
	Jul 31	1	6	0	0.00	2	0.33	148	24.67	162	27.00
	Aug 10	2	6	0	0.00	0	0.00	0	0.00	787	65.58
	Aug 13	5	6	0	0.00	1	0.03	5	0.17	1,761	58.70
	Aug 16	2	6	0	0.00	0	0.00	8	0.67	590	49.17
	Aug 20	3	6	0	0.00	52	2.89	0	0.00	1,063	59.06
	Aug 23	2	6	0	0.00	0	0.00	0	0.00	620	51.67
	Aug 26	5	6	0	0.00	0	0.00	0	0.00	541	18.03
Total		**8**	**84**	**447**		**474**		**5,050**		**7,180**	
1997	Aug 12	2	6	1	0.08	0	0.00	23	1.92	494	41.17
	Aug 18	3	6	4	0.22	1	0.06	0	0.00	708	39.33
Total		**4**	**12**	**5**		**1**		**23**		**1,202**	
1998	Aug 06	3	6	3	0.17	0	0	111	6.17	313	17.39
	Aug 11	No harvest/ No deliveries									
Total		**3**	**6**	**3**		**0**		**111**		**313**	
1999	**No commercial fishery In W-2**										
2000	Aug 12	4	6							1237	51.54
	Aug 21	2	6							439	36.58
Total		**12**	**12**							**1,676**	
2001	**No commercial fishery In W-2**										

[a] Gillnet mesh size unrestricted.

[b] Gillnets were restricted to 6 inches or less; after 1985 this restriction was in effect for all periods.

Appendix B.9. Historical commercial salmon harvest by statistical area in District 1, 1984-2001.

Year	Statistical Area 335-11				Statistical Area 335-12				Statistical Area 335-13				Statistical Area 335-14			
	Chinook	Sockeye	Chum	Coho	Chinook	Sockeye	Chum	Coho	Chinook	Sockeye	Chum	Coho	Chinook	Sockeye	Chum	Coho
1984 [ab]	20,229	45,276	385,178	332,679	9,717	1,295	10,853	272,419								
1985 [c]	18,210	53,548	117,152	168,465	17,949	50,805	74,056	161,483								
1986	9,329	46,505	169,958	301,093	9,181	46,670	134,243	342,096								
1987	20,492	82,403	332,002	226,252	13,415	52,228	234,497	159,069								
1988 [d]	40,355	60,168	861,433	290,872	12,540	27,127	453,012	199,036	915	2,469	47,537	18,509				
1989	29,702	28,319	498,490	233,182	10,856	11,499	203,120	192,796	1,187	1,570	25,782	35,056				
1990 [e]	6,195	8,988	54,431	63,804	29,195	38,113	224,148	196,827	11,762	20,508	101,711	93,928	4,731	14,349	57,737	40,678
1991	4,218	16,961	63,636	98,565	23,104	50,760	165,651	217,820	5,840	19,884	92,063	117,335	3,544	17,815	72,984	52,525
1992	7,754	18,253	76,215	124,583	23,177	36,938	178,693	271,900	9,064	22,829	43,979	159,189	4,682	11,936	34,249	75,922
1993	2,198	10,054	12,272	113,956	6,302	16,821	26,712	226,119	148	116	1,912	171,208	66	12	1,822	75,047
1994	1,589	8,071	27,823	87,428	13,678	34,512	163,087	283,129	634	4,863	55,284	226,100	300	1,916	23,232	93,739
1995	4,917	19,129	111,404	63,421	12,966	27,055	257,166	175,531	8,336	29,131	153,619	164,763	1,835	14,711	66,061	51,554
1996	237	1,851	9,651	100,608	4,161	15,969	117,496	393,330	2,064	12,619	57,533	323,751	510	2,965	18,147	112,442
1997	2,257	8,072	5,279	18,232	8,063	13,845	11,010	61,671	95	59	255	26,795	21	12	459	22,903
1998	2,457	13,536	34,648	32,025	9,346	24,882	105,751	69,654	4,713	18,773	48,908	60,664	840	3,715	18,391	47,825
1999	735	6,162	3,632	1,464	3,950	10,697	7,998	19,188	15	106	96	8,944	5	11	90	5,187
2000	91	874	1,960	40,472	313	3,174	9,448	74,614	527	68	109	100,474	165	14	53	44,143
2001	2	8	61	5,163	31	42	540	66,071	50	32	576	106,810	7	2	114	16,484

[a] Prior to June 25, gillnet mesh size was unrestricted in both statistical areas; after June 25, gillnet mesh size was restricted to 6 inches or less. Commerical fishing chum season was allowed only in 335-11, both statistical areas were open during coho season.

[b] Through 1987, statistical area 335-11 was located downstream of Bethel, and 335-12 was located upstream from Bethel to Mishevak Slough.

[c] Since 1985, gillnets have been restricted to 6 inches or less during all commecial periods.

[d] The upstream boundary of District 1 was moved upstream to Bogus Creek; the area from the old boundary to Bogus Creek was designated as stat. area 335-13.

[e] Beginning in 1990, the upstream boundary of District 1 was moved downstream to Nelson Island and the district was split into four statistical areas. Statistical areas 335-11 & -12 are below Bethel, and 335-13 & -14 are above Bethel.

Appendix B 10. Historical commercial salmon harvest and effort by fishing period in Kuskokwim Statistical Area 335-11.

Year	Date	Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1990	Jun 20	134	6	2,580	2,021	5,353		
	Jun 25	102	6	1,453	2,719	6,986		
	Jun 29	92	6	694	975	5,116		
	Jul 05	66	6	518	1,509	11,354		
	Jul 09	91	6	455	721	12,405	5	
	Jul 14	93	8	254	868	11,053	17	43
	Aug 01	98	6	36	50	1,166	330	3,653
	Aug 06	106	6	170	34	599	193	20,588
	Aug 10	123	6	22	27	244	73	11,089
	Aug 13	95	6	6	27	67	26	16,094
	Aug 16	100	9	6	14	60	28	7,243
	Aug 20	70	6	0	15	27	18	3,259
	Aug 27	35	6	1	8	1	12	1,835
Total		**743**	**83**	**6,195**	**8,988**	**54,431**	**702**	**63,804**
1991	Jun 20	88	6	1,392	2,619	3,340		
	Jun 24	86	6	1,633	4,867	9,865		
	Jul 01	94	6	576	5,572	10,195		
	Jul 06	102	6	264	2,387	6,031		
	Jul 13	84	6	150	894	11,289	12	4
	Jul 18	89	6	66	396	7,990	0	218
	Jul 22	65	6	30	46	3,973	0	310
	Jul 25	69	8	40	51	4,012	66	1,543
	Jul 29	91	8	12	40	4,050	19	7,661
	Aug 01	126	6	12	24	957	16	11,091
	Aug 05	149	8	11	19	927	19	12,868
	Aug 08	147	8	10	13	562	14	24,661
	Aug 12	150	8	7	13	278	34	16,355
	Aug 14	107	8	6	10	139	13	14,426
	Aug 19	82	6	7	4	21	1	6,422
	Aug 26	68	8	2	6	7	0	3,006
Total		**252**	**110**	**4,218**	**16,961**	**63,636**	**194**	**98,565**
1992	Jun 18	130	8	2,449	3,388	9,256		
	Jun 22	146	8	2,389	5,669	17,363		
	Jun 25	135	8	1,109	3,430	11,135	5	
	Jun 29	109	6	981	4,040	16,734	0	
	Jul 06	96	8	640	1,559	20,850	540	
	Aug 03	146	8	81	32	492	2,098	26,666
	Aug 06	124	6	21	30	243	219	20,674
	Aug 11	151	6	26	35	57	15	25,099
	Aug 14	130	6	23	28	48	26	17,348
	Aug 17	116	6	15	19	19	6	10,943
	Aug 20	104	6	6	5	2	0	10,691
	Aug 24	93	6	5	12	6	0	5,147
	Aug 27	66	6	6	3	6	0	6,072
	Aug 31	57	6	3	3	4	0	1,943
Total		**271**	**94**	**7,754**	**18,253**	**76,215**	**2,909**	**124,583**

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Year	Date	Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1993	Jun 25	183	8	2,073	9,803	10,844		
	Jul 31	150	6	44	78	867		11,538
	Aug 04	163	6	10	32	264		16,044
	Aug 06	119	8	21	43	120		16,922
	Aug 09	112	6	13	32	41		10,192
	Aug 14	163	6	18	22	67	5	27,176
	Aug 17	130	6	9	17	38	0	19,712
	Aug 21	125	6	2	5	6	0	5,531
	Aug 25	83	6	3	9	12	0	2,932
	Aug 28	71	6	5	13	12	2	3,265
	Sept 01	24	6	0	0	1	0	644
Total		**278**	**70**	**2,198**	**10,054**	**12,272**	**7**	**113,956**
1994	Jun 24	116	8	1,306	6,720	13,224		
	Jul 14	67	4	82	493	4,691	581	382
	Jul 19	85	6	64	270	4,428	1,193	1,279
	Jul 23	80	6	38	274	1,927	1,211	3,109
	Jul 26	109	6	31	183	1,994	2,276	5,314
	Jul 29	105	6	24	47	941	1,294	7,498
	Aug 04	120	6	15	27	378	972	10,214
	Aug 09	67	6	6	4	44	166	9,080
	Aug 12	113	8	11	16	74	101	13,019
	Aug 15	109	8	5	18	74	187	12,159
	Aug 18	96	8	1	8	24	55	7,944
	Aug 22	88	8	4	8	13	56	9,971
	Aug 25	54	8	0	2	3	20	2,850
	Aug 27	62	6	1	0	2	6	2,709
	Aug 30	45	6	1	0	6	13	1,422
	Sept 02	20	6	0	1	0	0	478
Total		**231**	**106**	**1,589**	**8,071**	**27,823**	**8,131**	**87,428**
1995	Jun 22	120	4	1,794	1,225	8,912		
	Jun 26	117	4	1,242	4,950	16,819		
	Jun 29	124	4	752	4,383	18,410		
	Jul 03	117	4	453	3,199	17,751		
	Jul 06	103	4	238	1,530	15,670		
	Jul 10	96	4	111	927	14,650	1	
	Jul 14	95	4	153	1,574	7,637	0	62
	Jul 18	83	6	68	455	8,539	0	170
	Jul 21	55	4	33	130	2,642	0	443
	Aug 04	88	6	21	77	82	3	10,613
	Aug 08	120	6	10	87	94	3	10,166
	Aug 12	115	6	7	269	106	2	14,836
	Aug 16	91	6	7	67	16	6	6,867
	Aug 19	100	6	7	55	22	1	6,886
	Aug 22	89	6	7	76	22	1	7,332
	Aug 26	85	6	11	77	19	6	3,905
	Aug 29	43	6	3	26	10	1	1,269
	Sept 01	23	6	0	22	3	0	872
Total		**260**	**92**	**4,917**	**19,129**	**111,404**	**24**	**63,421**

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Year	Date	Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1996	Jun 17	No Tenders / No Deliveries						
	Jun 20	1	2	4	90	120		0
	Jun 24	No Tenders / No Deliveries						
	Jul 02	10	2	39	160	958		0
	Jul 05	20	2	37	481	1,432		0
	Jul 08	17	2	24	353	932		1
	Jul 12	15	2	12	133	1,937		200
	Jul 16	6	2	4	35	115		142
	Jul 19	27	3	11	39	843		1,959
	Jul 22	71	6	20	185	1,771		12,764
	Jul 25	90	8	22	74	406	118	7,838
	Jul 29	78	6	19	75	900	125	14,135
	Jul 31	35	6	4	9	63	0	5,886
	Aug 03	124	6	10	67	89	1	18,114
	Aug 07	116	6	9	27	38	0	15,346
	Aug 10	64	6	6	7	7	0	6,166
	Aug 13	65	6	2	27	20	0	5,003
	Aug 16	95	6	6	42	8	0	6,261
	Aug 20	77	6	4	41	8	0	3,589
	Aug 23	63	6	3	6	4	0	2,664
	Aug 26	15	6	1	0	0	0	540
Total		**241**	**89**	**237**	**1,851**	**9,651**	**244**	**100,608**
1997	Jun 23	81	6	2,171	7,745	4,540		
	Jul 31	108	6	44	118	559		4,460
	Aug 06	92	6	29	126	120		4,350
	Aug 12	73	6	5	40	36		4,095
	Aug 18	65	6	8	43	24		5,327
Total		**158**	**30**	**2,257**	**8,072**	**5,279**	**0**	**18,232**
1998	Jun 24	85	6	1,168	3,286	6,721		
	Jun 29	88	6	548	6,389	15,518		
	Jul 03	72	4	270	2,194	6,113		
	Jul 11	55	4	211	685	3,542		10
	Jul 22	51	6	117	395	801		561
	Jul 27	97	6	71	425	1,331		4,647
	Aug 01	104	6	37	67	490	6	6,221
	Aug 06	84	6	15	42	56	3	6,970
	Aug 11	86	6	14	32	57	8	8,562
	Aug 17	60	6	0	12	6	8	2,063
	Aug 22	51	6	5	5	7	9	2,256
	Aug 29	22	6	1	4	6	7	735
Total		**215**	**68**	**2,457**	**13,536**	**34,648**	**41**	**32,025**
1999	Jun 30	83	6	733	6,122			
	Aug 07	58	6	2	40	3,623		1,464
Total		**100**	**12**	**735**	**6,162**	**3,623**	**0**	**1,464**

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Year	Date	Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
2000	Jul 07	44	4	77	623	1,800	0	0
	Aug 01	66	4	5	49	31	0	9,523
	Aug 05	75	6	0	56	7	0	8,129
	Aug 09	96	6	3	39	101	0	9,416
	Aug 14	51	6	2	49	14	0	5,577
	Aug 18	97	6	3	32	6	0	5,888
	Aug 22	104	6	1	25	1	6	1,658
	Aug 25	84	6	0	1	0	3	216
Total		**149**	**44**	**91**	**874**	**1,960**	**9**	**40,407**
2001	Aug 03	19	4	2	4	35	0	1,924
	Aug 08	14	6	0	0	10	0	2,757
	Aug 13	12	4	0	4	16	0	402
	Aug 15	0	6	0	0	0	0	0
	Aug 17	2	6	0	0	0	0	62
	Aug 20	0	6	0	0	0	0	0
	Aug 22	0	6	0	0	0	0	0
	Aug 25	1	6	0	0	0	0	18
Total		**29**	**44**	**2**	**8**	**61**	**0**	**5,163**

Appendix B.11. Historical commercial salmon harvest and effort by fishing period in Kuskokwim Statistical Area 335-12.

Year	Date	Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1990	Jun 20	496	6	14,110	8,297	24,953	0	0
	Jun 25	341	6	7,342	13,289	32,077	0	0
	Jun 29	337	6	3,815	7,660	35,828	0	0
	Jul 05	316	6	1,589	3,954	40,720	2	0
	Jul 09	294	6	1,201	3,172	43,347	4	0
	Jul 14	313	8	864	1,471	40,580	10	15
	Aug 01	337	6	129	130	3,663	1,058	14,536
	Aug 06	350	6	71	68	1,979	611	28,431
	Aug 10	301	6	40	32	612	184	17,860
	Aug 13	322	6	16	15	260	68	83,038
	Aug 16	293	9	8	12	77	51	21,734
	Aug 20	284	6	8	11	44	17	25,003
	Aug 27	253	6	2	2	8	5	6,210
Total		**649**	**83**	**29,195**	**38,113**	**224,148**	**2,010**	**196,827**
1991	Jun 20	513	6	12,421	17,113	9,926	0	0
	Jun 24	340	6	6,117	9,162	13,431	0	0
	Jul 01	351	6	2,926	11,040	27,070	0	0
	Jul 06	274	6	745	8,972	17,671	1	0
	Jul 13	291	6	412	2,198	20,744	9	12
	Jul 18	250	6	135	1,612	32,764	9	531
	Jul 22	231	6	57	302	13,985	17	1,065
	Jul 25	241	8	68	166	10,015	18	1,988
	Jul 29	277	8	68	78	10,749	14	22,819
	Aug 01	294	6	93	35	4,874	11	14,836
	Aug 05	277	8	16	32	2,075	6	21,918
	Aug 08	268	8	9	15	1,284	8	25,824
	Aug 12	294	8	16	13	654	4	61,098
	Aug 14	275	8	7	7	260	2	22,589
	Aug 19	272	6	10	10	98	2	25,540
	Aug 26	233	8	4	5	51	2	19,600
Total		**596**	**110**	**23,104**	**50,760**	**165,651**	**103**	**217,820**
1992	Jun 18	437	8	7,307	5,120	23,439	0	0
	Jun 22	313	8	7,160	9,668	42,391	14	0
	Jun 25	288	8	3,537	8,323	26,332	1	0
	Jun 29	291	6	3,645	10,957	45,137	38	0
	Jul 06	294	8	1,192	2,677	38,783	151	1
	Aug 03	292	8	125	75	1,578	2,670	29,341
	Aug 06	271	6	54	23	522	249	24,520
	Aug 11	296	6	64	25	299	0	81,586
	Aug 14	274	6	27	24	98	0	31,051
	Aug 17	280	6	25	29	62	0	42,555
	Aug 20	267	6	14	9	30	0	35,619
	Aug 24	248	6	12	4	6	0	9,522
	Aug 27	223	6	14	2	11	1	13,262
	Aug 31	154	6	1	2	5	0	4,443
Total		**566**	**94**	**23,177**	**36,936**	**178,693**	**3,124**	**271,900**

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Appendix B.11. (page 2 of 4)

Year	Date	Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1993	Jun 25	441	8	6,111	16,560	23,279	0	0
	Jul 31	286	6	59	60	1,558	11	25,420
	Aug 04	258	6	41	93	929	6	53,888
	Aug 06	279	8	31	28	535	9	37,491
	Aug 09	308	6	30	38	203	2	23,634
	Aug 14	287	6	16	12	115	6	34,600
	Aug 17	242	6	6	7	39	5	25,986
	Aug 21	244	6	3	14	30	1	13,822
	Aug 25	148	6	1	3	4	0	2,420
	Aug 28	128	6	3	5	11	0	3,406
	Sept 01	96	6	1	1	9	3	5,452
Total		**566**	**70**	**6,302**	**16,821**	**26,712**	**43**	**226,119**
1994	Jun 24	449	8	12,915	32,238	73,990	0	0
	Jul 14	270	4	253	1,186	21,138	608	280
	Jul 19	246	6	107	566	30,904	1,398	2,553
	Jul 23	244	6	114	184	21,471	2,828	11,974
	Jul 26	265	6	86	119	8,168	3,449	17,595
	Jul 29	279	6	114	72	4,358	3,681	27,548
	Aug 04	299	6	40	39	1,716	2,148	26,966
	Aug 09	263	6	8	58	627	751	58,112
	Aug 12	264	8	12	20	287	224	44,381
	Aug 15	270	8	9	8	168	183	15,883
	Aug 18	262	8	11	5	122	129	31,199
	Aug 22	256	8	4	6	61	112	15,696
	Aug 25	214	8	4	4	47	65	16,031
	Aug 27	182	6	0	4	17	21	6,130
	Aug 30	218	6	1	2	10	8	6,770
	Sept 02	137	6	0	1	3	7	2,011
Total		**583**	**106**	**13,678**	**34,512**	**163,087**	**15,612**	**283,129**
1995	Jun 22	449	4	5,101	3,195	40,245	0	0
	Jun 26	270	4	4,196	5,882	38,893	0	0
	Jun 29	257	4	1,865	6,668	45,700	0	0
	Jul 03	152	4	637	3,324	30,563	2	0
	Jul 06	196	4	439	4,866	33,073	0	0
	Jul 10	188	4	267	1,447	30,094	1	15
	Jul 14	203	4	195	786	18,045	3	112
	Jul 18	109	6	105	457	11,341	7	236
	Jul 21	171	4	56	173	7,988	5	436
	Aug 04	59	6	14	18	259	0	14,545
	Aug 08	265	6	35	66	473	5	41,623
	Aug 12	280	6	14	58	202	5	48,136
	Aug 16	251	6	14	23	76	5	18,086
	Aug 19	242	6	11	20	61	5	16,437
	Aug 22	213	6	2	21	83	5	17,312
	Aug 26	191	6	9	30	48	4	9,299
	Aug 29	152	6	5	14	15	6	8,186
	Sept 01	79	6	1	7	7	3	1,108
Total		**561**	**92**	**12,966**	**27,055**	**257,166**	**56**	**175,531**

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Year	Date	Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1996	Jun 17	245	2	2,045	1,850	11,560	0	0
	Jun 20	185	2	1,014	4,205	18,678	0	0
	Jun 24	129	1.5	248	1,762	10,233	0	0
	Jul 02	122	2	259	2,058	9,868	0	0
	Jul 05	86	2	85	882	8,460	0	1
	Jul 08	102	2	63	2,800	11,366	0	14
	Jul 12	127	2	103	1,555	15,561	0	1,018
	Jul 16	122	2	46	248	9,278	0	3,214
	Jul 19	141	3	61	132	6,491	0	7,046
	Jul 22	207	6	56	97	7,807	165	23,722
	Jul 25	254	8	44	76	4,720	140	61,435
	Jul 29	247	6	35	66	1,474	329	68,635
	Jul 31	250	6	24	49	834	212	52,739
	Aug 03	212	6	18	37	336	23	44,710
	Aug 07	195	6	19	27	319	34	36,850
	Aug 10	240	6	16	34	198	32	28,714
	Aug 13	224	6	13	33	144	21	30,841
	Aug 16	196	6	3	24	131	3	20,779
	Aug 20	150	6	7	19	22	2	7,242
	Aug 23	104	6	1	9	9	5	3,960
	Aug 26	72	6	1	6	7	0	2,410
Total		**486**	**93**	**4,161**	**15,969**	**117,496**	**966**	**393,330**
1997	Jun 23	274	6	7,852	13,473	8,550	0	0
	Jul 31	322	6	97	234	1,501	0	10,503
	Aug 06	280	6	62	80	662	2	15,689
	Aug 12	261	6	33	40	269	0	28,857
	Aug 18	234	6	19	18	28	0	6,622
Total		**449**	**30**	**8,063**	**13,845**	**11,010**	**2**	**61,671**
1998	Jun 24	253	6	5,245	5,757	25,746	0	0
	Jun 29	151	6	2,118	6,060	24,617	0	0
	Jul 03	230	4	971	6,958	28,029	0	1
	Jul 11	235	4	549	5,356	16,917	0	8
	Jul 22	165	6	184	355	5,510	0	1,822
	Jul 27	176	6	133	229	3,239	0	9,459
	Aug 01	208	6	80	76	1,172	9	14,304
	Aug 06	212	6	24	31	324	3	11,901
	Aug 11	196	6	28	32	151	6	19,207
	Aug 17	150	6	10	11	26	1	7,056
	Aug 22	123	6	4	16	19	3	5,131
	Aug 29	48	6	0	1	1	0	765
Total		**423**	**68**	**9,346**	**24,882**	**105,751**	**22**	**69,654**
1999	Jun 30	326	6	3,935	10,650	19,088	0	
	Aug 07	177	6	15	47	100	0	7,998
Total		**366**	**12**	**3,950**	**10,697**	**19,188**	**0**	**7,998**

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Appendix B.11. (page 4 of 4)

Year	Date	Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
2000	Jul 07	180	4	280	3,035	9,226	0	
	Aug 01	182	4	7	45	125	4	16,101
	Aug 05	196	6	8	17	36	1	23,864
	Aug 09	122	6	10	18	27	0	11,487
	Aug 14	154	6	4	26	19	1	11,189
	Aug 18	134	6	3	26	10	0	8,809
	Aug 22	92	6	0	7	3	0	2,831
	Aug 25	23	6	1	0	2	0	333
Total		**320**	**44**	**313**	**3,174**	**9,448**	**6**	**74,614**
2001	Aug 03	125	4	7	18	312	0	15,250
	Aug 08	122	6	12	7	114	0	23,477
	Aug 13	131	4	5	0	21	0	9,245
	Aug 15	120	6	1	8	50	0	6,678
	Aug 17	95	6	5	4	31	0	2,805
	Aug 20	43	6	1	4	9	0	2,063
	Aug 22	72	6	0	1	2	0	5,043
	Aug 25	53	6	0	0	1	0	1,510
Total		**257**	**44**	**31**	**42**	**540**	**0**	**66,071**

Appendix B.12. Historical commercial salmon harvest and effort by fishing period in Kuskokwim Statistical Area 335-13.

Year	Date	Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1990	Jun 20	No commercial opening						
	Jun 25	126	6	5,152	7,408	10,387		
	Jun 29	153	6	3,477	6,016	20,099		
	Jul 05	153	6	1,305	2,580	23,669	1	
	Jul 09	167	6	903	2,845	24,575	2	
	Jul 14	171	8	769	1,547	19,037	5	12
	Aug 01	119	6	53	77	1,984	182	3,736
	Aug 06	125	6	52	10	1,293	166	8,923
	Aug 10	171	6	26	5	348	74	18,171
	Aug 13	170	6	14	5	173	16	12,956
	Aug 16	201	9	9	2	96	34	27,544
	Aug 20	181	6	2	7	37	2	17,669
	Aug 27	185	6		6	13	4	4,917
Total		**328**	**77**	**11,762**	**20,508**	**101,711**	**486**	**93,928**
1991	Jun 20	No commercial opening						
	Jun 24	123	6	3,101	2,724	3,522		
	Jul 01	124	6	1,535	4,535	6,816		
	Jul 06	141	6	597	7,017	8,479		
	Jul 13	126	6	221	1,604	10,841		
	Jul 18	151	6	177	2,143	24,301		198
	Jul 22	174	6	75	1,391	17,267	2	984
	Jul 25	146	8	43	282	9,149		903
	Jul 29	109	8	37	129	5,042		4,849
	Aug 01	128	6	14	33	3,903	2	8,114
	Aug 05	142	8	15	6	1,369		12,005
	Aug 08	154	8	9	7	780	2	16,259
	Aug 12	158	8	9	1	335	1	26,481
	Aug 14	157	8	4	5	117		14,882
	Aug 19	172	6	3	6	112	1	17,678
	Aug 26	153	8		1	30		14,982
Total		**320**	**104**	**5,840**	**19,884**	**92,063**	**8**	**117,335**
1992	Jun 18	No commercial opening						
	Jun 22	106	8	3,297	5,761	6,634		
	Jun 25	143	8	2,858	6,679	9,439		
	Jun 29	149	6	1,948	8,065	12,160	1	
	Jul 06	141	8	777	2,240	14,408	28	1
	Aug 03	128	8	56	18	676	859	13,315
	Aug 06	138	6	27	38	315	36	8,729
	Aug 11	174	6	58	14	224	3	56,448
	Aug 14	168	6	11	3	46		25,578
	Aug 17	143	6	6	1	31		18,169
	Aug 20	149	6	12	3	20		17,900
	Aug 24	144	6	7	3	9		7,102
	Aug 27	138	6	4	1	9		6,284
	Aug 31	117	6	3	3	8		5,663
Total		**276**	**86**	**9,064**	**22,829**	**43,979**	**927**	**159,189**

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Appendix B.12. (page 2 of 4)

Year	Date	Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1993	Jun 25	No commercial opening						
	Jul 31	146	6	50	66	950	6	13,815
	Aug 04	186	6	27	13	445	3	51,261
	Aug 06	185	8	27	12	296		27,064
	Aug 09	158	6	18	4	73	1	12,821
	Aug 14	141	6	6	5	69		10,512
	Aug 17	192	6	11	7	38	1	26,249
	Aug 21	150	6	3	5	20		16,709
	Aug 25	146	6	0	1	8		3,237
	Aug 28	148	6	4	1	5		5,061
	Sept 01	116	6	2	2	8		4,479
Total		**306**	**62**	**148**	**116**	**1,912**	**11**	**171,208**
1994	Jun 24	No commercial opening						
	Jul 14	128	4	163	1,454	11,546	88	79
	Jul 19	138	6	153	2,764	18,368	894	2,625
	Jul 23	148	6	127	507	11,053	1,465	7,978
	Jul 26	142	6	91	62	8,268	1,346	13,847
	Jul 29	148	6	41	32	4,337	789	12,660
	Aug 04	147	6	28	20	1,185	543	26,272
	Aug 09	159	6	6	6	208	249	40,824
	Aug 12	187	8	7	6	202	113	40,117
	Aug 15	169	8	5	7	45	32	14,199
	Aug 18	186	8	6	3	37	50	31,410
	Aug 22	163	8	2	1	18	19	10,675
	Aug 25	156	8	3	1	9	24	15,199
	Aug 27	167	6	2	0	8	12	10,215
Total		**327**	**86**	**634**	**4,863**	**55,284**	**5,624**	**226,100**
1995	Jun 22	No commercial opening						
	Jun 26	193	4	3,970	8,526	36,766		
	Jun 29	151	4	1,848	5,351	14,574		
	Jul 03	153	4	1,103	6,341	26,526		
	Jul 06	140	4	596	5,499	21,883		
	Jul 10	163	4	371	1,975	27,758		6
	Jul 14	87	4	126	552	9,049	2	42
	Jul 18	96	6	114	358	8,770	2	206
	Jul 21	100	4	88	217	6,679	1	307
	Aug 04	82	6	26	28	605	2	22,165
	Aug 08	194	6	40	181	393		36,567
	Aug 12	184	6	19	22	451	1	29,290
	Aug 16	199	6	17	50	74	1	29,628
	Aug 19	160	6	5	8	34	2	12,069
	Aug 22	148	6	4	9	35	1	15,120
	Aug 26	149	6	3	9	14		10,316
	Aug 29	120	6	5	3	6	1	6,154
	Sept 01	102	6	1	2	2		2,893
Total		**331**	**88**	**8,336**	**29,131**	**153,619**	**13**	**164,763**

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Appendix B.12. (page 3 of 4)

Year	Date	Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1996	Jun 17	No commercial opening						
	Jun 20	81	2	856	1,817	7,292		
	Jun 24	97	1.5	330	2,284	7,581		
	Jul 02	75	2	189	1,358	8,239		
	Jul 05	74	2	141	1,642	5,648		1
	Jul 08	75	2	76	3,181	4,362		6
	Jul 12	75	2	83	1,391	6,748		311
	Jul 16	58	2	27	231	3,860		1,031
	Jul 19	78	3	64	64	3,796		4,093
	Jul 22	125	6	94	311	4,246	71	12,283
	Jul 25	135	8	40	73	2,742	99	34,446
	Jul 29	185	6	40	43	925	126	52,950
	Jul 31	139	6	18	30	543	51	43,749
	Aug 03	163	6	28	25	600	19	49,738
	Aug 07	177	6	13	17	185	13	31,440
	Aug 10	168	6	22	14	571	7	37,493
	Aug 13	123	6	8	19	97	6	20,904
	Aug 16	178	6	17	76	65	1	18,405
	Aug 20	112	6	5	19	17	10	8,615
	Aug 23	84	6	4	7	10	5	3,770
	Aug 26	101	6	9	17	6	3	4,516
Total		**309**	**90.5**	**2,064**	**12,619**	**57,533**	**411**	**323,751**
1997	Jun 23	No commercial opening						
	Aug 06	105	6	37	17	201		8,856
	Aug 12	132	6	17	38	49		13,518
	Aug 18	116	6	39	4	5		4,421
Total		**180**	**18**	**93**	**59**	**255**	**0**	**26,795**
1998	Jun 23	No commercial opening						
	Jun 29	181	6	3,288	9,084	23,601		
	Jul 03	117	4	842	5,376	13,388		
	Jul 11	104	4	318	3,443	6,059		4
	Jul 22	72	6	75	521	3,756	4	567
	Jul 27	52	6	84	43	1,186	11	2,805
	Aug 01	69	6	18	35	417	4	2,379
	Aug 06	143	6	43	214	308	4	16,759
	Aug 11	119	6	20	19	93	2	15,426
	Aug 17	160	6	19	14	67	2	15,155
	Aug 22	143	6	6	22	30	2	6,063
	Aug 29	60	6	0	2	3	0	1,506
Total		**316**	**62**	**4,713**	**18,773**	**48,908**	**29**	**60,664**
1999	Jun 30	No commercial opening						
	Aug 07	105	6	15	106	96	2	8,944
Total		**105**	**6**	**15**	**106**	**96**	**2**	**8,944**

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Year	Date	Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
2000	Jul 07	No commercial opening						
	Aug 04	87	6	6	6	36		37,362
	Aug 08	154	6	6	24	40	1	18,656
	Aug 12	144	6	10	16	15		26,362
	Aug 17	133	6	5	17	11		10,207
	Aug 21	110	6	2	3	6		5,681
	Aug 25	74	6	2	2	1		2,206
Total		**201**	**36**	**31**	**68**	**109**	**1**	**100,474**
2001	Aug 06	86	4	6	5	54	0	16,467
	Aug 08	119	6	11	3	212	0	19,204
	Aug 11	143	6	16	9	173	0	32,803
	Aug 15	167	6	4	7	72	0	20,609
	Aug 17	146	6	6	5	32	0	7,009
	Aug 20	106	6	5	1	8	0	3,377
	Aug 22	72	6	0	2	2	0	2,985
	Aug 25	61	6	2	0	4	0	2,826
Total		**257**	**46**	**50**	**32**	**557**	**0**	**105,280**

Appendix B.13. Historical commercial salmon harvest and effort by fishing period in Kuskokwim Statistical Area 335-14.

Year	Date	Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1990	Jun 20	No commercial opening						
	Jun 25	54	6	2,084	3,608	9,494		
	Jun 29	69	6	1,442	4,123	13,868		
	Jul 05	59	6	659	2,716	11,092		
	Jul 09	45	6	245	2,019	11,084		
	Jul 14	52	8	240	1,581	9,133		
	Aug 01	29	6	34	276	2,252	16	1,624
	Aug 06	50	6	13	21	726	6	3,508
	Aug 10	61	6	6	2	65	4	11,131
	Aug 13	56	6	2	1	9	1	3,356
	Aug 16	61	9	5	1	6	0	12,084
	Aug 20	61	6	1	1	5	1	5,907
	Aug 27	63	6	0	0	3	0	3,068
Total		**143**	**77**	**4,731**	**14,349**	**57,737**	**28**	**40,678**
1991	Jun 20	No commercial opening						
	Jun 24	71	6	1,761	2,509	3,814		
	Jul 01	63	6	929	3,281	6,040		
	Jul 06	72	6	496	5,843	7,879		
	Jul 13	72	6	121	1,762	9,678		
	Jul 18	78	6	74	977	13,742		30
	Jul 22	74	6	71	1,346	14,563		296
	Jul 25	77	8	35	1,027	6,907	2	437
	Jul 29	59	8	17	485	4,185	16	1,812
	Aug 01	56	6	6	532	3,364	1	4,243
	Aug 05	75	8	14	39	1,720	7	9,471
	Aug 08	65	8	5	5	568	0	5,293
	Aug 12	64	8	10	4	319	1	10,647
	Aug 14	63	8	1	1	118	0	6,496
	Aug 19	64	6	4	4	82	0	7,724
	Aug 26	60	8	0	0	5	0	6,076
Total		**170**	**104**	**3,544**	**17,815**	**72,984**	**27**	**52,525**
1992	Jun 18	No commercial opening						
	Jun 22	58	8	1,732	3,919	8,041		
	Jun 25	72	8	1,480	3,490	8,208		
	Jun 29	59	6	749	3,020	6,182		
	Jul 06	60	8	641	1,486	10,155		
	Aug 03	54	8	44	12	1,323	486	8,911
	Aug 06	57	6	14	7	239	0	3,583
	Aug 11	59	6	9	2	84	0	18,772
	Aug 14	63	6	2	0	4	0	13,982
	Aug 17	57	6	1	0	10	0	7,690
	Aug 20	59	6	4	0	1	0	9,153
	Aug 24	65	6	3	0	2	0	6,298
	Aug 27	54	6	2	0	0	0	2,620
	Aug 31	46	6	1	0	0	0	4,913
Total		**116**	**86**	**4,682**	**11,936**	**34,249**	**486**	**75,922**

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Year	Date	Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1993	Jun 25	No commercial opening						
	Jul 31	46	6	19	6	758		5,334
	Aug 04	60	6	20	3	442		16,456
	Aug 06	57	8	9	1	445	1	9,923
	Aug 09	50	6	4	1	129	1	8,170
	Aug 14	55	6	6	0	36	0	7,938
	Aug 17	58	6	4	0	4	1	10,749
	Aug 21	74	6	1	1	2	0	11,035
	Aug 25	65	6	2	0	4	0	1,967
	Aug 28	40	6	0	0	2	0	1,860
	Sept 01	38	6	1	0	0	0	1,615
Total		**100**	**62**	**66**	**12**	**1,822**	**3**	**75,047**
1994	Jun 24	No commercial opening						
	Jul 14	53	4	80	758	6,210	154	79
	Jul 19	35	6	117	875	6,404	230	570
	Jul 23	35	6	34	160	3,698	341	1,152
	Jul 26	37	6	17	107	4,030	343	3,145
	Jul 29	45	6	25	8	1,616	146	4,384
	Aug 04	42	6	5	1	704	172	12,062
	Aug 09	68	6	9	2	274	56	21,554
	Aug 12	61	8	4	5	214	59	20,236
	Aug 15	50	8	3	0	34	10	5,661
	Aug 18	59	8	2	0	29	31	12,197
	Aug 22	50	8	2	0	12	14	7,712
	Aug 25	33	8	2	0	4	3	3,515
	Aug 27	35	6	0	0	3	4	1,472
Total		**120**	**86**	**300**	**1,916**	**23,232**	**1,563**	**93,739**
1995	Jun 22	No commercial opening						
	Jun 26	4	4	63	91	674		
	Jun 29	33	4	488	1,786	4,896		
	Jul 03	55	4	654	4,214	14,587		
	Jul 06	45	4	248	2,870	10,620		
	Jul 10	48	4	157	2,751	13,866		
	Jul 14	50	4	72	1,307	8,406		5
	Jul 18	50	6	79	1,212	8,644		59
	Jul 21	42	4	25	420	3,730		86
	Aug 04	6	6	3	0	126		1,342
	Aug 08	36	6	10	29	269		10,192
	Aug 12	43	6	10	10	140		10,159
	Aug 16	52	6	14	7	42		11,132
	Aug 19	55	6	5	4	16		5,665
	Aug 22	47	6	3	7	17		4,214
	Aug 26	52	6	2	1	20		5,609
	Aug 29	40	6	2	2	8		2,181
	Sept 01	15	6	0	0	0		910
Total		**97**	**88**	**1,835**	**14,711**	**66,061**	**0**	**51,554**

-Continued-

Year	Date	Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
1996	Jun 17	No commercial opening						
	Jun 20	16	2	172	311	1,352		
	Jun 24	14	1.5	88	374	1,624		
	Jul 02	17	2	58	386	1,850		
	Jul 05	14	2	53	476	2,111		
	Jul 08	17	2	15	461	2,141		3
	Jul 12	20	2	32	702	2,222		79
	Jul 16	12	2	10	88	1,939		288
	Jul 19	21	3	28	63	2,260		1,648
	Jul 22	14	6	13	46	680		1,674
	Jul 25	18	8	18	33	1,156		9,918
	Jul 29	23	6	3	2	529		9,053
	Jul 31	51	6	6	4	101		20,572
	Aug 03	52	6	3	0	72		19,978
	Aug 07	31	6	2	2	39		10,696
	Aug 10	31	6	1	5	21		11,280
	Aug 13	59	6	2	3	35		13,305
	Aug 16	23	6	2	5	11		3,567
	Aug 20	62	6	3	4	4		6,424
	Aug 23	42	6	1	0	0		2,739
	Aug 26	21	6	0	0	0		1,218
Total		**117**	**90.5**	**510**	**2,965**	**18,147**	**0**	**112,442**
1997	Jun 23	No commercial opening						
	Jun 31	No commercial opening						
	Aug 06	37	6	17	6	404		8,321
	Aug 12	46	6	4	4	54		9,679
	Aug 18	60	6	0	2	1		4,903
Total		**79**	**18**	**21**	**12**	**459**	**0**	**22,903**
1998	Jun 24	No commercial opening						
	Jun 29	18	6	404	973	3,053		
	Jul 3	27	4	194	1,457	3,941		
	Jul 11	24	4	49	688	2,889		1
	Jul 22	60	6	84	267	5,596		683
	Jul 27	47	6	68	235	1,744		1,586
	Aug 1	44	6	21	57	708		3,887
	Aug 6	57	6	6	8	332		9,498
	Aug 11	64	6	5	12	87		15,231
	Aug 17	70	6	5	8	23		10,366
	Aug 22	65	6	4	10	11		5,486
	Aug 29	24	6	0	0	7		1,087
Total		**136**	**62**	**840**	**3,715**	**18,391**	**0**	**47,825**
1999	Jun 30	No commercial opening						
	Aug 7	49	6	5	11	571		5,187
Total		**49**	**6**	**5**	**11**	**571**	**0**	**5187**

-Continued-

Appendix B.13. (page 4 of 4)

Year	Date	Number of Permits	Hours Fished	Chinook Salmon	Sockeye Salmon	Chum Salmon	Pink Salmon	Coho Salmon
2000	Jul 7	No commercial opening						
	Aug 4	38	6	1	1	17		12,898
	Aug 8	32	6	3	2	15	1	8,115
	Aug 12	46	6	2	1	8		11,089
	Aug 17	60	6	0	6	4		7,709
	Aug 21	48	6	2	0	4		2,896
	Aug 25	33	6	1	4	5		1,436
Total		**87**	**36**	**9**	**14**	**53**	**1**	**44,143**
2001	Aug 06	22	4	2	0	47	0	3,622
	Aug 08	8	6	0	1	20	0	931
	Aug 11	32	6	4	1	45	0	8,840
	Aug 15	11	6	0	0	0	0	1,606
	Aug 17	16	6	1	0	2	0	1,188
	Aug 20	0	6	0	0	0	0	0
	Aug 22	5	6	0	0	0	0	121
	Aug 25	3	6	0	0	0	0	176
Total		**53**	**46**	**7**	**2**	**114**	**0**	**16,484**

Appendix B14. Estimated historical daily fish passage at George River weir.

Date	Chinook						Chum						Coho						Longnose Suckers					
	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001
6/09		2						0						0						401				
6/10		0						0						0						260				
6/11		2						0						0						221				
6/12		1						0						0						145				
6/13		0						0						0						336				
6/14		6						0						0						326				
6/15	23 *	26		0 *	0 *	0 *	0 *	0		0 *	0 *	0 *	0 *	0		0 *	0 *	0 *		429				
6/16	11 *	13 *		0 *	0 *	0 *	7 *	2 *		0 *	0 *	0 *	0 *	0 *		0 *	0 *	0 *		262 *				
6/17	10 *	11		0 *	0 *	0 *	7 *	2		0 *	0 *	0 *	0 *	0		0 *	0 *	0 *		68			45	
6/18	7 *	8		0 *	0	0 *	0 *	0		0 *	0	0 *	0 *	0		0 *	0	0 *		223			348	
6/19	37 *	42		0 *	0	0 *	7 *	2		0 *	0	0 *	0 *	0		0 *	0	0 *		100			34	
6/20	0 *	0		0 *	0	0 *	0 *	0		0 *	0	0 *	0 *	0		0 *	0	0 *		0			73	
6/21	27	17		0 *	0	0 *	65	2		0 *	5	17 *	0	0		0 *	0	0 *	519	276			238	
6/22	17	18	1	0 *	2	2 *	613	3	1	0 *	6	20 *	0	0	0	0 *	0	0 *	832	70	2		343	
6/23	269	362	3	9 *	10	11 *	1,314	35	0	0 *	38	126 *	0	0	0	0 *	0	0 *	703	204	46		927	
6/24	762	488	4	5 *	11	12 *	692	52	6	21 *	17	56 *	0	0	0	0 *	0	0 *	238	72	218		686	
6/25	214	907	14	5 *	5	6 *	49	43	23	8 *	17	56 *	0	0	0	0 *	0	0 *	285	120	106		1,204	29
6/26	41	288	44	14 *	1	15	376	49	162	21 *	1	10	0	0	0	0 *	0	0	62	162	688		130	819
6/27	183	514	35	9 *	120	16	508	79	116	29 *	90	17	0	0	0	0 *	0	0	285	285	921		262	1,439
6/28	98	397	170	33 *	0	100	167	34	289	78 *	0	39	0	0	0	0 *	0	0	2	366	987		6	2,105
6/29	91 *	566	126	12 *	8	305	191 *	178	288	78 *	4	140	0 *	0	0	0 *	0	0	1 *	336	877		8	5,831
6/30	84	767	164	5 *	8	15	215	204	399	67 *	12	7	0	0	0	0 *	0	0	0	245	1,102		0	369
7/01	1,034	456	288	38 *	63	43	498	64	634	106 *	108	40	0	0	0	0 *	0	0	1	491	472		8	88
7/02	712 *	277	397	12 *	416	163	730 *	77	388	100 *	273	110	0 *	0	0	0 *	0	0	15 *	215	115		9	905
7/03	389	584	428	31 *	115	8	961	267	557	117 *	128	21	0	0	0	0 *	0	0	29	405	330		395	5
7/04	320	347	287	62 *	69	36	1,074	83	605	128 *	77	26	0	0	0	0 *	0	0	0	305	119		324	14
7/05	280	221	245	33 *	48	32	326	174	960	109 *	72	68	0	0	0	0 *	0	0	25	205	195		965	32
7/06	579	294	203	36 *	51	531	606	111	439	164 *	218	228	0	0	0	0 *	0	0	43	176	101		24	8
7/07	180	93	33	33 *	231	246	575	52	123	199 *	162	425	0	0	0	0 *	0	0	19	74	16		400	241
7/08	122	34		31 *	137	36	629	49		183 *	47	173	0	0		0 *	0	0	2	301			12	200
7/09	436	37		50 *	81	70	852	40		376 *	40	319	0	0		0 *	0	0	149	4			107	842
7/10	127	29		95 *	15	155	241	62		454 *	58	349	0	0		0 *	0	0	2	79			13	168
7/11	376	33		188 *	495	64	446	45		469 *	436	546	0	0		0 *	0	0	6	6			261	494
7/12	53	245		280 *	116	610	343	207		483 *	161	600	0	0		0 *	0	0	1	109			576	331
7/13	60	31		128 *	10	57	394	7		325 *	91	429	0	0		0 *	0	0	3	24			184	164
7/14	127	11		68	22	113	489	12		182	41	610	0	0		0	0	0	0	31		54	0	219
7/15	324	65		206	17	86	556	158		194	22	537	0	0		0	0	0	21	2		42	66	38
7/16	78	6		185	146	26	232	51		333	150	325	1	0		0	0	0	15	0		25	1	57
7/17	67	22		21	104	45	462	236		327	88	427	0	0		0	0	0	15	39		20	0	4
7/18	107	42		58	13	97	514	207		394	55	502	0	0		0	0	0	15	1		9	0	129
7/19	63	87		260	219	41	667	575		768	144	533	1	0		0	0	0	0	10		14	2	92
7/20	49	111		456	9	88	322	300		709	18	427	3	2		0	0	0	8	420		18	1	148
7/21	58	83		43	13	34	387	342		316	41	330	0	1		0	0	0	146	76		4	2	178
7/22	26	49		196	41	46	273	144		379	87	397	0	2		0	1	0	102	25		4	2	81
7/23	29	32		61	87	17	321	292		465	172	208	6	0		0	2	0	0	72		3	4	66
7/24	54	7		161	22	4	525	207		533	116	264	22	2		0	0	0	0	5		0	1	79
7/25	34	41		203	25	12	449	238		443	76	244	47	2		0	0	0	0	21		2	7	30
7/26	17	18		159	34	14	508	110		353	56	337	93	1		0	5	0	0	0		3	6	19
7/27	9 *	9		37	43	16	154 *	42		195	47	341		2		0	4	1		0		2	4	33
7/28	25 *	25		58	10	28	645 *	176		292	34	314		3		1	0	0		6		0	0	32
7/29	7 *	7		47	11	17	352 *	96		148	28	233		2		0	0	0		4		0	0	54
7/30	13 *	13	18	19	5	5	260 *	71	546	65	26	189		3	7	0	0	3		6	8	0	0	8
7/31	13 *	13	14	24	26	7	488 *	133	367	286	63	172		9	8	0	9	6		17	4	0	1	8
8/01	4 *	4	6	7	13 *	6	150 *	41	295	221	33 *	145		9	14	0	5 *	7		2	270	0	0 *	72
8/02	5 *	5	25	37	11 *	9	103 *	28	193	214	23 *	180		22	23	1	7 *	11		0	55	0	1 *	20
8/03	7 *	7		20	13	4	128 *	35		216	22	131		25		0	11	9		0		0	2	6
8/04	4 *	4		21	5	3	257 *	70		166	3	85		52		1	6	3		1		0	1	0
8/05	4 *	4		12	6 *	2	183 *	50		137	7 *	85		41		12	16 *	12		0		4	1 *	8
8/06	2 *	2		6	3	7	139 *	38		61	1	103		59		0	23	25		0		0	0	11
8/07	3 *	3		4	3	6	117 *	32		63	3	84		75		3	25	22		0		0	0	12
8/08	3 *	3		2	8	9	121 *	33		82	2	109		69		4	119	62		0		0	0	147
8/09	5 *	5		10	0	3	48 *	13		73	6	75		70		6	5	32		0		2	0	13
8/10	1 *	1		0	1	1	62 *	17		24	3	63		35		8	53	13		0		0	0	1
8/11	3 *	3		3	6	2	92 *	25		22	6	35		71		13	116	2		0		1	0	9

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Appendix B14. (2 of 2)

Date	Chinook						Chum						Coho						Longnose Suckers					
	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001
8/12	8 *	8		1	6	3	125 *	34		28	2	41		198		4	245	252		0		0	0	4
8/13	5 *	5		7	2	2	143 *	39		56	17	22		170		23	909	273		0		0	3	62
8/14	3 *	3		2	7	0	117 *	32		34	5	11		213		32	480	123		0		0	0	3
8/15	4 *	4		16	5	1	33 *	9		58	2	13		92		33	263	187		0		0	0	19
8/16	8 *	8		5	2	1	44 *	12		24	2	19		44		70	207	1,534		0		0	0	39
8/17	1 *	1		5	0	4	29 *	8		11	2	14		59		94	186	1,301		0		0	0	5
8/18	1 *	1		0	1	1	18 *	5		23	1	38		103		116	558	709		0		3	0	12
8/19	0 *	0		1	2	2 *	22 *	6		25	3	23 *		70		68	216	937 *		0		2	0	7 *
8/20	3 *	3		4	0	2 *	26 *	7		20	7	20 *		346		186	1,177	870 *		0		0	0	6 *
8/21	2 *	2		4	0	2 *	22 *	6		6	4	18 *		334		193	1,451	803 *		0		0	0	5 *
8/22	1 *	1		0	1	2 *	0 *	0		7	0	15 *		1,152		85	435	735 *		0		0	0	4 *
8/23	0 *	0		0	2	1 *	0 *	0		6	1	12 *		131		186	49	668 *		0		1	0	4 *
8/24	0 *	0		0	0	1 *	0 *	0		1	0	10 *		162		139	220	601 *		0		4	0	3 *
8/25	0 *	0		1	0	1 *	7 *	2		5	3	7 *		66		96	273	533 *		0		2	0	2 *
8/26	0 *	0		1	2	1 *	18 *	5		3	1	5 *		275		141	310	466 *		1		2	1	1 *
8/27	0 *	0		2	0	2	18 *	5		1	1	3		64		206	1,228	430		13		1	0	0
8/28	0 *	0		0	0	1	4 *	1		4	1	2		60		230	1,101	368		6		2	0	1
8/29	0 *	0		0	1	0	15 *	4		1	1	1		17		198	637	480		1		1	0	0
8/30	0 *	0		1	0	0	22 *	6		3	1	0		1,471		70	244	262		21		2	0	0
8/31	0 *	0		0	0	0	33 *	9		7	0	2		358		107	97	402		2		1	0	3
9/01	0 *	0		2	0	0	4 *	1		5	2	0		482		1,296	55	450		0		2	0	1
9/02	0 *	0		0	0	0	0 *	0		4	0	1		202		718	131	190		0		2	0	1
9/03	0 *	0		0	0	0	15 *	4		2	1	1		161		72	145	233		7		2	0	0
9/04	0 *	0		0	0	1	0 *	0		9	0	1		151		185	73	98		0		2	0	0
9/05	0 *	0		1	0	0	15 *	4		7	1	0		261		113	91	41		0		3	0	0
9/06	0 *	0		0	0	0	4 *	1		8	0	1		58		108	14	63		0		0	0	0
9/07	0 *	0		0	0	0	26 *	7		4	0	1		234		114	0	64		0		0	0	0
9/08	0 *	0		1	0	0	0 *	0		3	0	3		34		425	10	192		0		0	0	0
9/09	0 *	0		0	0	0	0 *	0		4	0	3		375		331	11	101		0		0	0	0
9/10	0 *	0		0	0	0	18 *	5		0	0	0		428		86	3	166		0		0	0	0
9/11	0 *	0		0	0	0	0 *	0		4	0	2		174		35	14	37		0		0	0	0
9/12	0 *	0		1	0	0	0 *	0		0	0	1		47		566	3	13		0		0	0	0
9/13	0 *	0		0	0	0	0 *	0		1	0	1		141		676	2	45		1		2	0	0
9/14	0 *	0		0	1	0	0 *	0		0	0	1		105		917	3	82		0		0	0	0
9/15	0 *	0		0	0	0	0 *	0		1	0	0		174		653	5	35		2		0	0	0
9/16	0 *	0 *		0	0	0	0 *	0 *		1	0	0		70 *		60	3	88				1	0	0
9/17	0 *	0 *		0	0 *	0	0 *	0 *		0	0 *	0		70 *		36	3 *	143				1		0
9/18	0 *	0 *		0	0 *	0	0 *	0 *		0	0 *	0		50 *		145	2 *	127				1		0
9/19	0 *	0 *		0	0 *	0	0 *	0 *		0	0 *	2		30 *		49	1 *	13				2		0
9/20	0 *	0 *		0	0 *	0	0 *	0 *		1	0 *	0		22 *		3	0 *	75				0		0
9/21				0						3						12						2		
9/22				0						0						1						6		
9/23				0						2						2						18		
9/24				0						0						1						4		
9/25				0						1						0						2		
Total	7,716	7,834	2,505	3,548	4,960	5,310	21,670	5,907	6,391	11,558	5,492	13,602	173	9,210	52	8,930	13,262	16,399	3,544	8,093	6,632	278	9,688	17,841

* estimated fish passage

Appendix b. Estimated historical daily cumulative fish passage at George River weir.

Date	Chinook						Chum						Coho						Longnose Suckers					
	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001
6/09		2						0						0						401				
6/10		2						0						0						661				
6/11		4						0						0						882				
6/12		5						0						0						1,027				
6/13		5						0						0						1,363				
6/14		11						0						0						1,689				
6/15	23 *	37		0 *	0 *	0 *	0 *	0		0 *	0 *	0 *	0 *	0		0 *	0 *	0 *		2,118				
6/16	34 *	50 *		0 *	0 *	0 *	7 *	2 *		0 *	0 *	0 *	0 *	0 *		0 *	0 *	0 *		2,380 *				
6/17	44 *	61		0 *	0 *	0 *	15 *	4		0 *	0 *	0 *	0 *	0		0 *	0 *	0 *		2,448			45	
6/18	51 *	69		0 *	0	0 *	15 *	4		0 *	0	0 *	0 *	0		0 *	0	0 *		2,671			393	
6/19	88 *	111		0 *	0	0 *	22 *	6		0 *	0	0 *	0 *	0		0 *	0	0 *		2,771			427	
6/20	88 *	111		0 *	0	0 *	22 *	6		0 *	0	0 *	0 *	0		0 *	0	0 *		2,771			500	
6/21	115	128		0 *	0	0 *	87	8		0 *	5	17 *	0	0		0 *	0	0 *	519	3,047			738	
6/22	132	146	1	0 *	2	2 *	700	11	1	0 *	11	36 *	0	0	0	0 *	0	0 *	1,351	3,117	2		1,081	
6/23	401	508	4	9 *	12	13 *	2,014	46	1	0 *	49	162 *	0	0	0	0 *	0	0 *	2,054	3,321	48		2,008	
6/24	1,163	996	8	14 *	23	25 *	2,706	98	7	21 *	66	219 *	0	0	0	0 *	0	0 *	2,292	3,393	266		2,694	
6/25	1,377	1,903	22	19 *	28	31 *	2,755	141	30	29 *	83	275 *	0	0	0	0 *	0	0 *	2,577	3,513	372		3,898	29
6/26	1,418	2,191	66	33 *	29	46	3,131	190	192	50 *	84	285	0	0	0	0 *	0	0	2,639	3,675	1,060		4,028	848
6/27	1,601	2,705	101	43 *	149	62	3,639	269	308	79 *	174	302	0	0	0	0 *	0	0	2,924	3,960	1,981		4,290	2,287
6/28	1,699	3,102	271	76 *	149	162	3,806	303	597	157 *	174	341	0	0	0	0 *	0	0	2,926	4,326	2,968		4,296	4,392
6/29	1,790 *	3,668	397	88 *	157	467	3,997 *	481	885	235 *	178	481	0 *	0	0	0 *	0	0	2,927 *	4,662	3,845		4,304	10,223
6/30	1,874	4,435	561	93 *	165	482	4,212	685	1,284	302 *	190	488	0	0	0	0 *	0	0	2,927	4,907	4,947		4,304	10,592
7/01	2,908	4,891	849	131 *	228	525	4,710	749	1,918	408 *	298	528	0	0	0	0 *	0	0	2,928	5,398	5,419		4,312	10,680
7/02	3,619 *	5,168	1,246	142 *	644	688	5,440 *	826	2,306	507 *	571	638	0 *	0	0	0 *	0	0	2,943 *	5,613	5,534		4,321	11,585
7/03	4,008	5,752	1,674	173 *	759	696	6,401	1,093	2,863	625 *	699	659	0	0	0	0 *	0	0	2,972	6,018	5,864		4,716	11,590
7/04	4,328	6,099	1,961	235 *	828	732	7,475	1,176	3,468	752 *	776	685	0	0	0	0 *	0	0	2,972	6,323	5,983		5,040	11,604
7/05	4,608	6,320	2,206	268 *	876	764	7,801	1,350	4,428	862 *	848	753	0	0	0	0 *	0	0	2,997	6,528	6,178		6,005	11,636
7/06	5,187	6,614	2,409	304 *	927	1,295	8,407	1,461	4,867	1,025 *	1,066	981	0	0	0	0 *	0	0	3,040	6,704	6,279		6,029	11,644
7/07	5,367	6,707	2,442	337 *	1,158	1,541	8,982	1,513	4,990	1,224 *	1,228	1,406	0	0	0	0 *	0	0	3,059	6,778	6,295		6,429	11,885
7/08	5,489	6,741		368 *	1,295	1,577	9,611	1,562		1,407 *	1,275	1,579	0	0		0 *	0	0	3,061	7,079			6,441	12,085
7/09	5,925	6,778		418 *	1,376	1,647	10,463	1,602		1,784 *	1,315	1,898	0	0		0 *	0	0	3,210	7,083			6,548	12,927
7/10	6,052	6,807		513 *	1,391	1,802	10,704	1,664		2,238 *	1,373	2,247	0	0		0 *	0	0	3,212	7,162			6,561	13,095
7/11	6,428	6,840		701 *	1,886	1,866	11,150	1,709		2,706 *	1,809	2,793	0	0		0 *	0	0	3,218	7,168			6,822	13,589
7/12	6,481	7,085		981 *	2,002	2,476	11,493	1,916		3,189 *	1,970	3,393	0	0		0 *	0	0	3,219	7,277			7,398	13,920
7/13	6,541	7,116		1,109 *	2,012	2,533	11,887	1,923		3,514 *	2,061	3,822	0	0		0 *	0	0	3,222	7,301			7,582	14,084
7/14	6,668	7,127		1,177	2,034	2,646	12,376	1,935		3,696	2,102	4,432	0	0		0	0	0	3,222	7,332		54	7,582	14,303
7/15	6,992	7,192		1,383	2,051	2,732	12,932	2,093		3,890	2,124	4,969	0	0		0	0	0	3,243	7,334		96	7,648	14,341
7/16	7,070	7,198		1,568	2,197	2,758	13,164	2,144		4,223	2,274	5,294	1	0		0	0	0	3,258	7,334		121	7,649	14,398
7/17	7,137	7,220		1,589	2,301	2,803	13,626	2,380		4,550	2,362	5,721	1	0		0	0	0	3,273	7,373		141	7,649	14,402
7/18	7,244	7,262		1,647	2,314	2,900	14,140	2,587		4,944	2,417	6,223	1	0		0	0	0	3,288	7,374		150	7,649	14,531
7/19	7,307	7,349		1,907	2,533	2,941	14,807	3,162		5,712	2,561	6,756	2	0		0	0	0	3,288	7,384		164	7,651	14,623
7/20	7,356	7,460		2,363	2,542	3,029	15,129	3,462		6,421	2,579	7,183	5	2		0	0	0	3,296	7,804		182	7,652	14,771
7/21	7,414	7,543		2,406	2,555	3,063	15,516	3,804		6,737	2,620	7,513	5	3		0	0	0	3,442	7,880		186	7,654	14,949
7/22	7,440	7,592		2,602	2,596	3,109	15,789	3,948		7,116	2,707	7,910	5	5		0	1	0	3,544	7,905		190	7,656	15,030
7/23	7,469	7,624		2,663	2,683	3,126	16,110	4,240		7,581	2,879	8,118	11	5		0	3	0	3,544	7,977		193	7,660	15,096
7/24	7,523	7,631		2,824	2,705	3,130	16,635	4,447		8,114	2,995	8,382	33	7		0	3	0	3,544	7,982		193	7,661	15,175
7/25	7,557	7,672		3,027	2,730	3,142	17,084	4,685		8,557	3,071	8,626	80	9		0	3	0	3,544	8,003		195	7,668	15,205
7/26	7,574	7,690		3,186	2,764	3,156	17,592	4,795		8,910	3,127	8,963	173	10		0	8	0	3,544	8,003		198	7,674	15,224
7/27	7,583 *	7,699		3,223	2,807	3,172	17,746 *	4,837		9,105	3,174	9,304		12		0	12	1		8,003		200	7,678	15,257
7/28	7,608 *	7,724		3,281	2,817	3,200	18,391 *	5,013		9,397	3,208	9,618		15		1	12	1		8,009		200	7,678	15,289
7/29	7,615 *	7,731		3,328	2,828	3,217	18,743 *	5,109		9,545	3,236	9,851		17		1	12	1		8,013		200	7,678	15,343
7/30	7,628 *	7,744	2,460	3,347	2,833	3,222	19,003 *	5,180	5,536	9,610	3,262	10,040		20	7	1	12	4		8,019	6,303	200	7,678	15,351
7/31	7,640 *	7,757	2,474	3,371	2,859	3,229	19,491 *	5,313	5,903	9,896	3,325	10,212		29	15	1	21	10		8,036	6,307	200	7,679	15,359
8/01	7,644 *	7,761	2,480	3,378	2,872 *	3,235	19,642 *	5,354	6,198	10,117	3,358 *	10,357		38	29	1	26 *	17		8,038	6,577	200	7,679 *	15,431
8/02	7,649 *	7,766	2,505	3,415	2,883 *	3,244	19,744 *	5,382	6,391	10,331	3,381 *	10,537		60	52	2	33 *	28		8,038	6,632	200	7,680 *	15,451
8/03	7,656 *	7,773		3,435	2,896	3,248	19,873 *	5,417		10,547	3,403	10,668		85		2	44	37		8,038		200	7,682	15,457
8/04	7,660 *	7,777		3,456	2,901	3,251	20,129 *	5,487		10,713	3,406	10,753		137		3	50	40		8,039		200	7,683	15,457
8/05	7,664 *	7,781		3,468	2,907 *	3,253	20,313 *	5,537		10,850	3,413 *	10,838		178		15	66 *	52		8,039		204	7,684 *	15,465
8/06	7,666 *	7,783		3,474	2,910	3,260	20,452 *	5,575		10,911	3,414	10,941		237		15	89	77		8,039		204	7,684	15,476
8/07	7,669 *	7,786		3,478	2,913	3,266	20,569 *	5,607		10,974	3,417	11,025		312		18	114	99		8,039		204	7,684	15,488
8/08	7,672 *	7,789		3,480	2,921	3,275	20,690 *	5,640		11,056	3,419	11,134		381		22	233	161		8,039		204	7,684	15,635
8/09	7,677 *	7,794		3,490	2,921	3,278	20,738 *	5,653		11,129	3,425	11,209		451		28	238	193		8,039		206	7,684	15,648
8/10	7,678 *	7,795		3,490	2,922	3,279	20,800 *	5,670		11,153	3,428	11,272		486		36	291	206		8,039		206	7,684	15,649
8/11	7,681 *	7,798		3,493	2,928	3,281	20,892 *	5,695		11,175	3,434	11,307		557		49	407	208		8,039		207	7,684	15,658

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Appendix B15. (2 of 2)

Date	Chinook						Chum						Coho						Longnose Suckers					
	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001
8/12	7,689 *	7,806		3,494	2,934	3,284	21,017 *	5,729		11,203	3,436	11,348		755		53	652	460		8,039		207	7,684	15,662
8/13	7,694 *	7,811		3,501	2,936	3,286	21,160 *	5,768		11,259	3,453	11,370		925		76	1,561	733		8,039		207	7,687	15,724
8/14	7,697 *	7,814		3,503	2,943	3,286	21,277 *	5,800		11,293	3,458	11,381		1,138		108	2,041	856		8,039		207	7,687	15,727
8/15	7,701 *	7,818		3,519	2,948	3,287	21,310 *	5,809		11,351	3,460	11,394		1,230		141	2,304	1,043		8,039		207	7,687	15,746
8/16	7,708 *	7,826		3,524	2,950	3,288	21,354 *	5,821		11,375	3,462	11,413		1,274		211	2,511	2,577		8,039		207	7,687	15,785
8/17	7,709 *	7,827		3,529	2,950	3,292	21,383 *	5,829		11,386	3,464	11,427		1,333		305	2,697	3,878		8,039		207	7,687	15,790
8/18	7,710 *	7,828		3,529	2,951	3,293	21,402 *	5,834		11,409	3,465	11,465		1,436		421	3,255	4,587		8,039		210	7,687	15,802
8/19	7,710 *	7,828		3,530	2,953	3,295 *	21,424 *	5,840		11,434	3,468	11,488 *		1,506		489	3,471	5,524 *		8,039		212	7,687	15,809 *
8/20	7,713 *	7,831		3,534	2,953	3,297 *	21,449 *	5,847		11,454	3,475	11,508 *		1,852		675	4,648	6,394 *		8,039		212	7,687	15,815 *
8/21	7,715 *	7,833		3,538	2,953	3,299 *	21,471 *	5,853		11,460	3,479	11,526 *		2,186		868	6,099	7,197 *		8,039		212	7,687	15,820 *
8/22	7,716 *	7,834		3,538	2,954	3,301 *	21,471 *	5,853		11,467	3,479	11,541 *		3,338		953	6,534	7,932 *		8,039		212	7,687	15,824 *
8/23	7,716 *	7,834		3,538	2,956	3,302 *	21,471 *	5,853		11,473	3,480	11,553 *		3,469		1,139	6,583	8,600 *		8,039		213	7,687	15,828 *
8/24	7,716 *	7,834		3,538	2,956	3,303 *	21,471 *	5,853		11,474	3,480	11,563 *		3,631		1,278	6,803	9,201 *		8,039		217	7,687	15,831 *
8/25	7,716 *	7,834		3,539	2,956	3,304 *	21,479 *	5,855		11,479	3,483	11,570 *		3,697		1,374	7,076	9,734 *		8,039		219	7,687	15,833 *
8/26	7,716 *	7,834		3,540	2,958	3,305 *	21,497 *	5,860		11,482	3,484	11,575 *		3,972		1,515	7,386	10,200 *		8,040		221	7,688	15,834 *
8/27	7,716 *	7,834		3,542	2,958	3,307	21,515 *	5,865		11,483	3,485	11,578		4,036		1,721	8,614	10,630		8,053		222	7,688	15,834
8/28	7,716 *	7,834		3,542	2,958	3,308	21,519 *	5,866		11,487	3,486	11,580		4,096		1,951	9,715	10,998		8,059		224	7,688	15,835
8/29	7,716 *	7,834		3,542	2,959	3,308	21,534 *	5,870		11,488	3,487	11,581		4,113		2,149	10,352	11,478		8,060		225	7,688	15,835
8/30	7,716 *	7,834		3,543	2,959	3,308	21,556 *	5,876		11,491	3,488	11,581		5,584		2,219	10,596	11,740		8,081		227	7,688	15,835
8/31	7,716 *	7,834		3,543	2,959	3,308	21,589 *	5,885		11,498	3,488	11,583		5,942		2,326	10,693	12,142		8,083		228	7,688	15,838
9/01	7,716 *	7,834		3,545	2,959	3,308	21,592 *	5,886		11,503	3,490	11,583		6,424		3,622	10,748	12,592		8,083		230	7,688	15,839
9/02	7,716 *	7,834		3,545	2,959	3,308	21,592 *	5,886		11,507	3,490	11,584		6,626		4,340	10,879	12,782		8,083		232	7,688	15,840
9/03	7,716 *	7,834		3,545	2,959	3,308	21,607 *	5,890		11,509	3,491	11,585		6,787		4,412	11,024	13,015		8,090		234	7,688	15,840
9/04	7,716 *	7,834		3,545	2,959	3,309	21,607 *	5,890		11,518	3,491	11,586		6,938		4,597	11,097	13,113		8,090		236	7,688	15,840
9/05	7,716 *	7,834		3,546	2,959	3,309	21,622 *	5,894		11,525	3,492	11,586		7,199		4,710	11,188	13,154		8,090		239	7,688	15,840
9/06	7,716 *	7,834		3,546	2,959	3,309	21,625 *	5,895		11,533	3,492	11,587		7,257		4,818	11,202	13,217		8,090		239	7,688	15,840
9/07	7,716 *	7,834		3,546	2,959	3,309	21,651 *	5,902		11,537	3,492	11,588		7,491		4,932	11,202	13,281		8,090		239	7,688	15,840
9/08	7,716 *	7,834		3,547	2,959	3,309	21,651 *	5,902		11,540	3,492	11,591		7,525		5,357	11,212	13,473		8,090		239	7,688	15,840
9/09	7,716 *	7,834		3,547	2,959	3,309	21,651 *	5,902		11,544	3,492	11,594		7,900		5,688	11,223	13,574		8,090		239	7,688	15,840
9/10	7,716 *	7,834		3,547	2,959	3,309	21,670 *	5,907		11,544	3,492	11,594		8,328		5,774	11,226	13,740		8,090		239	7,688	15,840
9/11	7,716 *	7,834		3,547	2,959	3,309	21,670 *	5,907		11,548	3,492	11,596		8,502		5,809	11,240	13,777		8,090		239	7,688	15,840
9/12	7,716 *	7,834		3,548	2,959	3,309	21,670 *	5,907		11,548	3,492	11,597		8,549		6,375	11,243	13,790		8,090		239	7,688	15,840
9/13	7,716 *	7,834		3,548	2,959	3,309	21,670 *	5,907		11,549	3,492	11,598		8,690		7,051	11,245	13,835		8,091		241	7,688	15,840
9/14	7,716 *	7,834		3,548	2,960	3,309	21,670 *	5,907		11,549	3,492	11,599		8,795		7,968	11,248	13,917		8,091		241	7,688	15,840
9/15	7,716 *	7,834		3,548	2,960	3,309	21,670 *	5,907		11,550	3,492	11,599		8,969		8,621	11,253	13,952		8,093		241	7,688	15,840
9/16	7,716 *	7,834 *		3,548	2,960	3,309	21,670 *	5,907 *		11,551	3,492	11,599		9,039 *		8,681	11,256	14,040				242	7,688	15,840
9/17	7,716 *	7,834 *		3,548	2,960 *	3,309	21,670 *	5,907 *		11,551	3,492 *	11,599		9,108 *		8,717	11,259 *	14,183				243		15,840
9/18	7,716 *	7,834 *		3,548	2,960 *	3,309	21,670 *	5,907 *		11,551	3,492 *	11,599		9,158 *		8,862	11,261 *	14,310				244		15,840
9/19	7,716 *	7,834 *		3,548	2,960 *	3,309	21,670 *	5,907 *		11,551	3,492 *	11,601		9,188 *		8,911	11,262 *	14,323				246		15,840
9/20	7,716 *	7,834 *		3,548	2,960 *	3,309	21,670 *	5,907 *		11,552	3,492 *	11,601		9,210 *		8,914	11,262 *	14,398				246		15,840
9/21				3,548						11,555						8,926						248		
9/22				3,548						11,555						8,927						254		
9/23				3,548						11,557						8,929						272		
9/24				3,548						11,557						8,930						276		
9/25				3,548						11,558						8,930						278		

* estimated fish passage

Appendix B16. Estimated historical daily cumulative percent fish passage at George River weir.[a]

Date	Chinook						Chum						Coho						Suckers					
	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001
6/09		0						0						0						5				
6/10		0						0						0						8				
6/11		0						0						0						11				
6/12		0						0						0						13				
6/13		0						0						0						17				
6/14		0						0						0						21				
6/15	0	0		0	0	0	0	0		0	0	0		0	0	0	0			26				
6/16	0	1		0	0	0	0	0		0	0	0		0	0	0	0			29				
6/17	1	1		0	0	0	0	0		0	0	0		0	0	0	0			30			1	
6/18	1	1		0	0	0	0	0		0	0	0		0	0	0	0			33			5	
6/19	1	1		0	0	0	0	0		0	0	0		0	0	0	0			34			6	
6/20	1	1		0	0	0	0	0		0	0	0		0	0	0	0			34			7	
6/21	1	2		0	0	0	0	0		0	0	0		0	0	0	0		15	38			10	
6/22	2	2		0	0	0	3	0		0	0	0		0	0	0	0		38	39			14	
6/23	5	6		0	0	0	9	1		0	1	1		0	0	0	0		58	41			26	
6/24	15	13		0	1	1	12	2		0	2	2		0	0	0	0		65	42			35	
6/25	18	24		1	1	1	13	2		0	2	2		0	0	0	0		73	43			51	0
6/26	18	28		1	1	1	14	3		0	2	2		0	0	0	0		74	45			52	5
6/27	21	35		1	5	2	17	5		1	5	3		0	0	0	0		83	49			56	14
6/28	22	40		2	5	5	18	5		1	5	3		0	0	0	0		83	53			56	28
6/29	23	47		2	5	14	18	8		2	5	4		0	0	0	0		83	58			56	65
6/30	24	57		3	6	15	19	12		3	5	4		0	0	0	0		83	61			56	67
7/01	38	62		4	8	16	22	13		4	9	5		0	0	0	0		83	67			56	67
7/02	47	66		4	22	21	25	14		4	16	5		0	0	0	0		83	69			56	73
7/03	52	73		5	26	21	30	18		5	20	6		0	0	0	0		84	74			61	73
7/04	56	78		7	28	22	34	20		7	22	6		0	0	0	0		84	78			66	73
7/05	60	81		8	30	23	36	23		7	24	6		0	0	0	0		85	81			78	73
7/06	67	84		9	31	39	39	25		9	31	8		0	0	0	0		86	83			78	74
7/07	70	86		10	39	47	41	26		11	35	12		0	0	0	0		86	84			84	75
7/08	71	86		10	44	48	44	26		12	37	14		0	0	0	0		86	87			84	76
7/09	77	87		12	46	50	48	27		15	38	16		0	0	0	0		91	88			85	82
7/10	78	87		14	47	54	49	28		19	39	19		0	0	0	0		91	88			85	83
7/11	83	87		20	64	56	51	29		23	52	24		0	0	0	0		91	89			89	86
7/12	84	90		28	68	75	53	32		28	56	29		0	0	0	0		91	90			96	88
7/13	85	91		31	68	77	55	33		30	59	33		0	0	0	0		91	90			99	89
7/14	86	91		33	69	80	57	33		32	60	38		0	0	0	0		91	91			99	90
7/15	91	92		39	69	83	60	35		34	61	43		0	0	0	0		92	91			99	91
7/16	92	92		44	74	83	61	36		37	65	46		0	0	0	0		92	91			99	91
7/17	92	92		45	78	85	63	40		39	68	49		0	0	0	0		92	91			99	91
7/18	94	93		46	78	88	65	44		43	69	54		0	0	0	0		93	91			99	92
7/19	95	94		54	86	89	68	54		49	73	58		0	0	0	0		93	91			100	92
7/20	95	95		67	86	92	70	59		56	74	62		0	0	0	0		93	96			100	93
7/21	96	96		68	86	93	72	64		58	75	65		0	0	0	0		97	97			100	94
7/22	96	97		73	88	94	73	67		62	78	68		0	0	0	0		100	98			100	95
7/23	97	97		75	91	94	74	72		66	82	70		0	0	0	0		100	99			100	95
7/24	97	97		80	91	95	77	75		70	86	72		0	0	0	0		100	99			100	96
7/25	98	98		85	92	95	79	79		74	88	74		0	0	0	0		100	99			100	96
7/26	98	98		90	93	95	81	81		77	90	77		0	0	0	0		100	99			100	96
7/27	98	98		91	95	96	82	82		79	91	80		0	0	0	0			99			100	96
7/28	99	99		92	95	97	85	85		81	92	83		0	0	0	0			99			100	97
7/29	99	99		94	96	97	86	86		83	93	85		0	0	0	0			99			100	97
7/30	99	99		94	96	97	88	88		83	93	87		0	0	0	0			99			100	97
7/31	99	99		95	97	98	90	90		86	95	88		0	0	0	0			99			100	97
8/01	99	99		95	97	98	91	91		88	96	89		0	0	0	0			99			100	97
8/02	99	99		96	97	98	91	91		89	97	91		1	0	0	0			99			100	98
8/03	99	99		97	98	98	92	92		91	97	92		1	0	0	0			99			100	98
8/04	99	99		97	98	98	93	93		93	98	93		1	0	0	0			99			100	98
8/05	99	99		98	98	98	94	94		94	98	93		2	0	1	0			99			100	98
8/06	99	99		98	98	99	94	94		94	98	94		3	0	1	1			99			100	98
8/07	99	99		98	98	99	95	95		95	98	95		3	0	1	1			99			100	98
8/08	99	99		98	99	99	95	95		96	98	96		4	0	2	1			99			100	99
8/09	99	99		98	99	99	96	96		96	98	97		5	0	2	1			99			100	99
8/10	100	100		98	99	99	96	96		96	98	97		5	0	3	1			99			100	99
8/11	100	100		98	99	99	96	96		97	98	97		6	1	4	1			99			100	99

- continued -

Appendix B16. (2 of 2)

Date	Chinook						Chum						Coho						Suckers					
	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001
8/12	100	100		98	99	99	97	97		97	98	98		8		1	6	3		99			100	99
8/13	100	100		99	99	99	98	98		97	99	98		10		1	14	5		99			100	99
8/14	100	100		99	99	99	98	98		98	99	98		12		1	18	6		99			100	99
8/15	100	100		99	100	99	98	98		98	99	98		13		2	20	7		99			100	99
8/16	100	100		99	100	99	99	99		98	99	98		14		2	22	18		99			100	100
8/17	100	100		99	100	99	99	99		99	99	99		14		3	24	27		99			100	100
8/18	100	100		99	100	100	99	99		99	99	99		16		5	29	32		99			100	100
8/19	100	100		99	100	100	99	99		99	99	99		16		5	31	38		99			100	100
8/20	100	100		100	100	100	99	99		99	100	99		20		8	41	44		99			100	100
8/21	100	100		100	100	100	99	99		99	100	99		24		10	54	50		99			100	100
8/22	100	100		100	100	100	99	99		99	100	99		36		11	58	55		99			100	100
8/23	100	100		100	100	100	99	99		99	100	100		38		13	58	60		99			100	100
8/24	100	100		100	100	100	99	99		99	100	100		39		14	60	64		99			100	100
8/25	100	100		100	100	100	99	99		99	100	100		40		15	63	68		99			100	100
8/26	100	100		100	100	100	99	99		99	100	100		43		17	66	71		99			100	100
8/27	100	100		100	100	100	99	99		99	100	100		44		19	76	74		100			100	100
8/28	100	100		100	100	100	99	99		99	100	100		44		22	86	76		100			100	100
8/29	100	100		100	100	100	99	99		99	100	100		45		24	92	80		100			100	100
8/30	100	100		100	100	100	99	99		99	100	100		61		25	94	82		100			100	100
8/31	100	100		100	100	100	100	100		99	100	100		65		26	95	84		100			100	100
9/01	100	100		100	100	100	100	100		100	100	100		70		41	95	87		100			100	100
9/02	100	100		100	100	100	100	100		100	100	100		72		49	97	89		100			100	100
9/03	100	100		100	100	100	100	100		100	100	100		74		49	98	90		100			100	100
9/04	100	100		100	100	100	100	100		100	100	100		75		51	99	91		100			100	100
9/05	100	100		100	100	100	100	100		100	100	100		78		53	99	91		100			100	100
9/06	100	100		100	100	100	100	100		100	100	100		79		54	99	92		100			100	100
9/07	100	100		100	100	100	100	100		100	100	100		81		55	99	92		100			100	100
9/08	100	100		100	100	100	100	100		100	100	100		82		60	100	94		100			100	100
9/09	100	100		100	100	100	100	100		100	100	100		86		64	100	94		100			100	100
9/10	100	100		100	100	100	100	100		100	100	100		90		65	100	95		100			100	100
9/11	100	100		100	100	100	100	100		100	100	100		92		65	100	96		100			100	100
9/12	100	100		100	100	100	100	100		100	100	100		93		71	100	96		100			100	100
9/13	100	100		100	100	100	100	100		100	100	100		94		79	100	96		100			100	100
9/14	100	100		100	100	100	100	100		100	100	100		95		89	100	97		100			100	100
9/15	100	100		100	100	100	100	100		100	100	100		97		97	100	97		100			100	100
9/16	100	100		100	100	100	100	100		100	100	100		98		97	100	98					100	100
9/17	100	100		100	100	100	100	100		100	100	100		99		98	100	99						100
9/18	100	100		100	100	100	100	100		100	100	100		99		99	100	99						100
9/19	100	100		100	100	100	100	100		100	100	100		100		100	100	99						100
9/20	100	100		100	100	100	100	100		100	100	100		100		100	100	100						100
9/21				100						100						100								
9/22				100						100						100								
9/23				100						100						100								
9/24				100						100						100								
9/25				100						100						100								

[a] The boxed areas within each column represent the central 50 percent of the run and the median; years without boxed areas or numbers had truncated operational periods which disallowed estimating run timing.

Appendix B.17. Middle Kuskokwim River, District 2 commercial effort 1970-2001.

Year	Unrestricted Mesh Season	Restricted Mesh Season	Coho Salmon Season	Total Permits
1970	10	0 [a]	11	18
1971	22	0 [a]	0 [a]	22
1972	12	0 [a]	0 [a]	12
1973	28	0 [a]	0 [a]	28
1974	36	0 [a]	16	37
1975	38	0 [a]	0 [a]	38
1976	55	0 [a]	11	57
1977	83	54	24	105
1978	28	0 [a]	16	43
1979	41	0 [a]	20	43
1980	37	21	12	43
1981	153	11	16	153
1982	38	50	25	60
1983	14	42	9	43
1984	15	49	32	58
1985	0 [b]	17	16	23
1986	0 [b]	21	35	43
1987	0 [b]	24	20	29
1988	0 [b]	19	21	29

	Number of Permits Landing Each Species						Total
	Chinook	Sockeye	Coho	Pink	Chum	Roe	Permits
1989	20	19	29	8	26	2	30
1990	19	19	21	13	20	0	22
1991	20	20	22	9	22	0	23
1992	18	18	22	3	21	0	22
1993	10	4	20	0	19	0	20
1994	5	3	20	7	20	0	20
1995	18	19	15	0	20	0	21
1996	6	3	8	0	6	6	8
1997	3	1	4	0	2	0	4
1998	2	0	3	0	3	0	3
1999	0 [a]	0 [a]	0 [a]	0 [a]	0 [a]	0 [a]	0 [a]
2000	0	0	4	0	1	0	4
2001	0 [a]	0 [a]	0 [a]	0 [a]	0 [a]	0 [a]	0 [a]
Ten Year Average (1991-2000)	8	7	12	2	11	1	13

a No commercial salmon season.

b No unrestricted mesh season.

APPENDIX C

Appendix C.1. Results of Kanektok River aerial surveys, by species, 1962-2001[a]

	SPECIES			
Year	Chinook	Sockeye	Coho	Chum
1962	935	43,108		
1963				
1964				
1965				
1966	3,718			28,800
1967				
1968	4,170	8,000		14,000
1969				
1970	3,112	11,375		
1971				
1972				
1973	814			
1974				
1975		6,018		
1976		22,936		8,697
1977	5,787	7,244		32,157
1978[b]	19,180	44,215		229,290
1979				
1980				
1981[c]	6,172	113,931	69,325	25,950
1982[d]	15,900	49,175		71,840
1983	8,142	55,940		
1984	8,890	2,340		9,360
1985	12,182	30,840	46,830	53,060
1986	13,465	16,270		14,385
1987	3,643	14,940		16,790
1988	4,223	51,753	20,056	9,420
1989	11,180	30,440		20,583
1990	7,914	14,735		6,270
1991[d]	2,563	32,082		2,475
1992[e]	2,100	44,436	4,330	19,052
1993	3,856	14,955		25,675
1994	4,670	23,128		1,285
1995	7,386	30,090		10,000
1996				
1997				
1998	6,107	22,020	23,656	7,040
1999[f]	8,080	27,100	5,192	3,270
2000	1,118	11,670	10,120	10,000
2001	6,483	38,610		11,440
OBJECTIVE:	5,800	15,000		30,500

[a] Aerial surveys are those rated fair or good surveys obtained between 20 July and 5 August for chinook and sockeye salmon, 20-31 July for chum salmon, and 20 August and 5 September for coho salmon. Some surveys which do not meet these criteria may be referenced in this table; text are footnoted.

[b] Chum salmon count excluded from escapement objective calculation due to exceptional magnitude.

[c] Poor survey for chinook, sockeye, chum salmon.

[d] Late survey for chinook, sockeye salmon (after 5 August).

[e] Some chum may have been sockeye.

[f] Survey occurred before peak for chinook, sockeye and chum salmon (July 14).

Appendix C.2. Daily and cumulative fish passage, Kanektok River Weir, 2001

	Chinook		Sockeye		Chum		Pink		Coho		Dolly Varden	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
10-Aug	11	11	56	56	101	101	0	0	87	87	46	46
11-Aug	11	22	137	193	164	265	9	9	167	254	118	164
12-Aug	15	37	87	280	197	462	2	11	368	622	144	308
13-Aug	25	62	93	373	134	596	1	12	551	1,173	261	569
14-Aug	14	76	57	430	153	749	0	12	971	2,144	406	975
15-Aug	5	81	19	449	89	838	2	14	838	2,982	137	1,112
16-Aug	9	90	48	497	84	922	0	14	1,863	4,845	184	1,296
17-Aug	4	94	33	530	33	955	1	15	893	5,738	115	1,411
18-Aug	3	97	23	553	25	980	0	15	733	6,471	56	1,467
19-Aug	3	100	14	567	15	995	0	15	583	7,054	63	1,530
20-Aug	14	114	16	583	6	1,001	0	15	2,579	9,633	62	1,592
21-Aug	3	117	12	595	12	1,013	2	17	1,235	10,868	39	1,631
22-Aug	2	119	9	604	3	1,016	0	17	931	11,799	39	1,670
23-Aug	0	119	9	613	4	1,020	0	17	853	12,652	46	1,716
24-Aug	2	121	8	621	4	1,024	0	17	818	13,470	39	1,755
25-Aug	2	123	14	635	5	1,029	0	17	1,293	14,763	93	1,848
26-Aug	3	126	7	642	5	1,034	0	17	1,293	16,056	50	1,898
27-Aug	1	127	11	653	5	1,039	0	17	972	17,028	75	1,973
28-Aug	2	129	11	664	0	1,039	0	17	1,378	18,406	58	2,031
29-Aug	1	130	2	666	0	1,039	1	18	1,800	20,206	86	2,117
30-Aug	0	130	4	670	3	1,042	0	18	1,964	22,170	44	2,161
31-Aug	0	130	7	677	2	1,044	0	18	1,442	23,612	38	2,199
1-Sep	0	130	1	678	6	1,050	0	18	973	24,585	34	2,233
2-Sep	0	130	0	678	0	1,050	0	18	736	25,321	16	2,249
3-Sep	0	130	8	686	1	1,051	0	18	610	25,931	13	2,262
4-Sep	0	130	8	694	0	1,051	0	18	921	26,852	23	2,285
5-Sep	0	130	8	702	0	1,051	0	18	685	27,537	14	2,299
6-Sept[a]	0	130	4	706	0	1,051	0	18	443	27,980	4	2,303
7-Sep[b]	0	130	0	706	0	1,051	0	18	201	28,181	6	2,309
8-Sept[b]	0	130	1	707	0	1,051	0	18	347	28,528	16	2,325
9-Sept[b]	0	130	0	707	0	1,051	0	18	407	28,935	19	2,344
10-Sept[b]	0	130	0	707	0	1,051	0	18	883	29,818	16	2,360
11-Sept[b]	0	130	0	707	0	1,051	0	18	649	30,467	16	2,376
12-Sep	0	130	1	708	0	1,051	0	18	627	31,094	13	2,389
13-Sep	1	131	2	710	0	1,051	0	18	622	31,716	29	2,418
14-Sep	0	131	3	713	0	1,051	0	18	527	32,243	17	2,435
15-Sep	0	131	4	717	0	1,051	1	19	452	32,695	11	2,446
16-Sep	0	131	6	723	1	1,052	0	19	373	33,068	12	2,458
17-Sep	0	131	2	725	0	1,052	0	19	405	33,473	18	2,476

continued

Appendix C.2. (page 2 of 2)

	Chinook		Sockeye		Chum		Pink		Coho		Dolly Varden	
Date	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum	Daily	Cum
18-Sep	0	0	0	0	1	1	0	0	343	343	12	12
19-Sep	0	0	0	0	1	2	0	0	275	618	18	30
20-Sep	0	0	0	0	0	2	0	0	215	833	15	45
21-Sep	0	0	4	4	0	2	0	0	222	1,055	5	50
22-Sep	1	1	1	5	0	2	0	0	166	1,221	3	53
23-Sep	0	1	3	8	1	3	0	0	190	1,411	11	64
24-Sep	0	1	1	9	0	3	0	0	134	1,545	4	68
25-Sep	0	1	0	9	0	3	0	0	129	1,674	3	71
26-Sep	0	1	0	9	0	3	0	0	58	1,732	3	74
27-Sep	0	1	3	12	1	4	0	0	127	1,859	0	74
28-Sep	0	1	0	12	0	4	0	0	54	1,913	1	75
29-Sep	0	1	0	12	0	4	0	0	51	1,964	3	78
30-Sep	0	1	0	12	0	4	0	0	36	2,000	0	78
1-Oct	0	1	0	12	0	4	0	0	64	2,064	0	78
2-Oct	0	1	0	12	0	4	0	0	68	2,132	2	80
3-Oct	0	1	2	14	0	4	0	0	45	2,177	0	80

[a] Weir was not operational. Coho salmon passage estimated using interoplation.

[b] Weir was not fishtight. Partial counts, no estimates made.

Appendix C.3. Quinhagak District commercial salmon harvest, 1960-2001.

YEAR	CHINOOK	SOCKEYE	COHO	PINK	CHUM	TOTAL
1960	0	5,649	3,000	0	0	8,649
1961	4,328	2,308	46	90	18,864	25,636
1962	5,526	10,313	0	4,340	45,707	65,886
1963	6,555	0	0	0	0	6,555
1964	4,081	13,422	379	939	707	19,528
1965	2,976	1,886	0	0	4,242	9,104
1966	278	1,030	0	268	2,610	4,186
1967	0	652	1926	0	8,087	10,665
1968	8,879	5,884	21,511	75,818	19,497	131,589
1969	16,802	3,784	15,077	953	38,206	74,822
1970	18,269	5,393	16,850	15,195	46,556	102,263
1971	4,185	3,118	2,982	13	30,208	40,506
1972	15,880	3,286	376	1,878	17,247	38,667
1973	14,993	2,783	16,515	277	19,680	54,248
1974	8,704	19,510	10,979	43,642	15,298	98,133
1975	3,928	8,584	10,742	486	35,233	58,973
1976	14,110	6,090	13,777	31,412	43,659	109,048
1977	19,090	5,519	9,028	202	43,707	77,546
1978	12,335	7,589	20,114	47,033	24,798	111,869
1979	11,144	18,828	47,525	295	25,995	103,787
1980	10,387	13,221	62,610	21,671	65,984	173,873
1981	24,524	17,292	47,551	160	53,334	142,861
1982	22,106	25,685	73,652	11,838	34,346	167,627
1983	46,385	10,263	32,442	168	23,090	112,348
1984	33,663	17,255	132,151	16,249	50,422	249,740
1985	30,401	7,876	29,992	28	20,418	88,715
1986	22,835	21,484	57,544	8,700	29,700	140,263
1987	26,022	6,489	50,070	66	8,557	91,204
1988	13,883	21,556	68,605	21,310	29,220	154,574
1989	20,820	20,582	44,607	273	39,395	125,677
1990	27,644	83,681	26,926	12,056	47,717	198,024
1991	9,480	53,657	42,571	115	54,493	160,316
1992	17,197	60,929	86,404	64,217	73,383	302,130
1993	15,784	80,934	55,817	7	40,943	193,485
1994	8,564	72,314	83,912	35,904	61,301	261,995
1995	38,584	68,194	66,203	186	81,462	254,629
1996	14,165	57,665	118,718	20	83,005 [b]	273,573
1997	35,510	69,562	32,862	5	38,445	176,384
1998	23,158	41,382	80,183	2,217	45,095	192,035
1999	18,426	41,315	6,184	0	38,091	104,016
2000	21,229	68,557	30,529	3	30,553	150,871
2001	12,775	33,807	18,531	0	17,209	82,322
Ten Year Average (91–00)	20,210	61,451	60,338	20,472 [a]	54,677	206,943 [c]
Historical Average (60-00)	15,923	24,037	34,643	19,748 [a]	33,884	118,683 [c]

a Average of even years only
b Estimate of chum roe included
c Total average includes odd years of Pink salmon.

Appendix C.4. Historical number of periods, hours, and permits fished, Quinhagak District, 1970-2001.

YEAR	NUMBER OF PERIODS	FISHING HOURS[a]	PERMITS FISHED[b]
1970	14	1,494	88
1971	6	630	61
1972	16	192	107
1973	28	504	109
1974	30	360	196
1975	24	288	127
1976	27	324	181
1977	27	324	258
1978	37	444	200
1979	36	432	206
1980	36	432	169
1981	33	396	186
1982	34	408	177
1983	28	318	226
1984	33	396	263
1985	23	276	300
1986	29	348	324
1987	19	216	310
1988	32	384	288
1989	29	348	227
1990	30	444	390
1991	31	372	346
1992	34	420	349
1993	32	384	409
1994	32	384	308
1995	35	414	382
1996	27	298	218
1997	31	372	289
1998	34	408	203
1999	19	228	218
2000	27	324	230
2001	20	231	159
Ten Year Average (1991-2000)	30	360	295
Historical Average (1970-2000)	28	405	237

a Number of hours that fishing was open in the Quinhagak District.
b Permits that made at least one delivery during the year.

Appendix C.5. Exvessel value of the Quinhagak District commercial harvest, 1990-2001

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1990	251,304	544,008	123,815	4,179	90,941	1,014,238
1991	95,800	247,117	144,455	36	107,228	594,636
1992	165,310	368,598	303,371	15,086	137,356	989,721
1993	142,918	402,910	245,982	4	104,347	896,161
1994	66,918	256,091	423,612	10,237	84,351	841,209
1995	417,029	322,113	202,834	83	106,041	1,048,099
1996	61,296	165,318	245,662	6	61,323	533,604
1997	168,933	206,562	92,396	1	30,769	498,661
1998	81,566	150,261	198,041	850	35,254	465,972
1999	93,886	141,492	14,800	0	28,116	278,894
2000	131,001	249,473	61,763	1	23,929	466,167
2001	92,423	11,832	88,957	0	32,577	225,789
10-year avg	$142,466	$250,994	$193,292	$2,630	$71,871	$661,312

Appendix C.6. Commercial salmon season summary, Quinhagak District, 2001.

			Chinook						Sockeye						Coho						Chum					
Date	Deliveries	Permits	# of Fish	Lbs	CPUE	Avg wt (lbs)	Avg $ (lbs)	Ex-vessel Value	# of Fish	Lbs	CPUE	Avg wt (lbs)	Avg $ (lbs)	Ex-vessel Value	# of Fish	Lbs	CPUE	Avg wt (lbs)	Avg $ (lbs)	Ex-vessel Value	# of Fish	Lbs	CPUE	Avg wt (lbs)	Avg $ (lbs)	Ex-vessel Value
6/21	90	53	4,024	78,009	6.4	19.4	0.40	$31,204	1,225	9,091	2.0	7.4	0.40	$3,636	0	0	0.0	0.0	0.00	$0	154	1,217	0.25	7.9	0.10	$122
6/25	131	108	3,047	65,200	2.4	20.8	0.35	$22,855	3,209	25,164	2.6	7.4	0.35	$8,808	0	0	0.0	0.0	0.00	$0	1,431	12,030	1.13	8.2	0.10	$1,203
6/28	118	106	2,490	52,633	2.0	21.1	0.35	$18,422	5,222	39,588	4.1	7.6	0.35	$13,856	0	0	0.0	0.0	0.00	$0	2,486	19,946	1.95	8	0.10	$1,995
7/2	110	99	934	19,191	0.9	20.5	0.35	$6,717	6,656	51,531	6.5	7.7	0.35	$18,036	0	0	0.0	0.0	0.00	$0	2,292	17,956	2.22	7.8	0.10	$1,796
7/5	119	107	828	17,268	0.9	20.9	0.35	$6,044	7,638	58,178	8.0	7.6	0.35	$20,362	0	0	0.0	0.0	0.00	$0	2,275	17,583	2.37	7.7	0.10	$1,758
7/9	89	80	432	8,442	0.8	19.5	0.35	$2,955	3,317	24,932	6.4	7.5	0.35	$8,656	0	0	0.0	0.0	0.00	$0	1,794	12,273	3.48	6.8	0.10	$1,276
7/12	74	67	318	5,302	0.6	16.7	0.35	$1,856	2,831	20,716	5.2	7.3	0.35	$7,251	0	0	0.0	0.0	0.00	$0	2,060	14,974	3.75	7.3	0.10	$1,497
7/16	51	50	267	4,577	0.5	17.1	0.35	$1,602	1,678	12,027	2.9	7.2	0.35	$4,209	0	0	0.0	0.0	0.00	$0	1,767	12,570	3.07	7.1	0.10	$1,275
7/18	52	46	138	2,405	0.3	17.4	0.35	$842	977	6,970	1.9	7.1	0.35	$2,440	0	0	0.0	0.0	0.00	$0	1,316	9,430	2.61	7.2	0.10	$977
7/23	29	26	89	1,577	0.3	17.7	0.34	$531	380	2,788	1.3	7.3	0.35	$974	41	312	0.1	7.6	0.20	$62	938	6,688	3.13	7.1	0.10	$669
8/1	36	32	34	557	0.1	16.4	0.32	$180	180	1,147	0.5	6.4	0.35	$401	1,005	8,232	3.0	8.2	0.20	$1,646	278	1,842	0.83	6.6	0.10	$184
8/3	28	23	20	427	0.0	21.4	0.31	$132	57	410	0.2	7.2	0.35	$141	913	7,133	3.3	7.8	0.20	$1,427	123	643	0.34	6.8	0.10	$64
8/6	42	31	25	494	0.0	21.5	0.33	$162	62	393	0.2	6.3	0.35	$138	1,828	15,252	4.9	8.3	0.20	$3,050	141	911	0.38	6.5	0.10	$91
8/10	36	29	11	193	0.0	17.5	0.31	$59	32	249	0.2	4.3	0.35	$87	2,570	22,516	7.7	8.8	0.20	$4,503	46	297	0.14	6.5	0.10	$30
8/13	44	32	9	163	0.0	18.1	0.29	$47	37	251	0.1	6.8	0.35	$88	3,130	27,988	8.4	8.9	0.20	$5,598	24	140	0.06	5.8	0.10	$14
8/15	35	31	6	57	0.0	9.5	0.35	$20	28	192	0.1	6.9	0.35	$63	3,612	32,292	9.7	8.9	0.20	$6,458	28	199	0.08	7.1	0.10	$20
8/18	37	37	5	72	0.0	14.4	0.35	$25	34	237	0.1	7.0	0.35	$83	3,844	34,777	8.7	9.0	0.20	$6,955	25	183	0.06	7	0.10	$18
8/20	7	7	0	0	0.0	0.0	0.00	$0	2	14	0.0	7.0	0.35	$5	201	1,759	2.4	8.8	0.20	$352	1	5	0.01	5	0.10	$1
8/22	25	24	4	65	0.0	16.3	0.35	$23	28	197	0.1	7.0	0.35	$69	955	8,604	3.3	9.0	0.20	$1,721	21	144	0.07	6.9	0.10	$14
8/24	16	15	6	101	0.0	16.8	0.22	$22	15	90	0.1	6.0	0.35	$32	434	4,021	2.4	9.3	0.20	$804	5	37	0.03	7.4	0.10	$4
Totals	1,169	1,003	12,687	256,733				$93,697	33,608	254,165				$89,334	18,533	162,886				$32,577	17,205	129,068				$13,007

Appendix C.7. Commercial chinook salmon harvest statistics by date, District W-4, 1981-2001.

Date	No. Yrs w/ fishing period on date	Minimum Harvest	Maximum Harvest	Median Cum Harvest	Proportion Harvest	Average Harvest
12-Jun	1	-	-	-	0.00	-
13-Jun	5	33	7,720	6,669	0.05	4,752
14-Jun	2	-	5,080	2,540	0.06	2,540
15-Jun	6	1,165	3,914	2,982	0.09	2,795
16-Jun	5	-	7,835	1,179	0.13	3,074
17-Jun	2	3,527	8,190	5,859	0.15	5,859
18-Jun	6	1,942	11,997	5,710	0.22	5,981
19-Jun	4	3,525	6,405	5,251	0.27	5,108
20-Jun	5	746	7,341	3,031	0.31	3,708
21-Jun	6	4,024	6,194	4,381	0.36	4,898
22-Jun	5	3,642	10,586	4,752	0.42	5,575
23-Jun	4	2,039	11,652	4,807	0.47	5,826
24-Jun	7	1,403	6,698	3,476	0.53	4,039
25-Jun	7	2,125	4,539	3,151	0.58	3,398
26-Jun	5	1,506	3,578	1,741	0.60	2,335
27-Jun	3	1,849	9,711	3,795	0.63	5,118
28-Jun	6	1,438	5,468	2,887	0.67	3,210
29-Jun	6	-	2,378	1,808	0.69	1,575
30-Jun	5	690	4,496	1,272	0.71	2,037
1-Jul	5	657	3,752	1,916	0.73	2,149
2-Jul	9	934	3,602	1,853	0.77	1,907
3-Jul	7	1,096	2,771	1,787	0.79	1,838
4-Jul	5	508	4,068	1,381	0.81	1,904
5-Jul	9	611	2,710	967	0.84	1,193
6-Jul	7	273	1,670	692	0.85	833
7-Jul	8	620	1,566	1,135	0.87	1,139
8-Jul	7	465	2,407	756	0.88	1,074
9-Jul	9	432	1,259	722	0.90	758
10-Jul	5	334	956	736	0.90	695
11-Jul	10	331	1,545	537	0.92	755
12-Jul	5	306	687	450	0.92	490
13-Jul	9	205	1,011	419	0.93	519
14-Jul	9	26	1,351	438	0.94	510
15-Jul	8	143	1,306	342	0.95	545
16-Jul	7	196	533	267	0.96	335
17-Jul	8	130	443	219	0.96	247
18-Jul	7	138	845	202	0.97	355
19-Jul	7	97	792	140	0.97	256
20-Jul	6	89	490	265	0.97	278
21-Jul	9	90	248	162	0.98	167
22-Jul	6	35	629	171	0.98	215
23-Jul	8	-	324	98	0.98	139
24-Jul	8	33	254	94	0.98	118
25-Jul	6	-	379	110	0.98	135

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Date	No. Yrs w/ fishing period on date	Minimum Harvest	Maximum Harvest	Median Harvest	Cum Proportion Harvest	Average Harvest
26-Jul	6	-	93	39	0.98	45
27-Jul	10	-	194	91	0.99	95
28-Jul	6	23	63	51	0.99	47
29-Jul	8	21	116	81	0.99	73
30-Jul	6	47	111	76	0.99	77
31-Jul	9	-	63	35	0.99	35
1-Aug	8	28	153	61	0.99	69
2-Aug	8	12	53	33	0.99	32
3-Aug	10	16	160	47	0.99	57
4-Aug	5	-	59	30	0.99	29
5-Aug	11	6	141	32	0.99	45
6-Aug	8	19	78	32	0.99	39
7-Aug	7	10	49	27	1.00	28
8-Aug	8	-	71	19	1.00	26
9-Aug	6	6	36	12	1.00	16
10-Aug	10	-	125	24	1.00	36
11-Aug	6	6	31	16	1.00	17
12-Aug	9	12	74	18	1.00	29
13-Aug	7	-	36	16	1.00	16
14-Aug	9	6	29	12	1.00	14
15-Aug	7	2	43	27	1.00	21
16-Aug	10	1	16	8	1.00	9
17-Aug	8	1	66	13	1.00	18
18-Aug	9	5	13	10	1.00	9
19-Aug	10	-	51	10	1.00	13
20-Aug	7	-	16	7	1.00	8
21-Aug	10	1	13	5	1.00	6
22-Aug	7	3	33	6	1.00	10
23-Aug	8	1	11	5	1.00	4
24-Aug	9	1	14	4	1.00	5
25-Aug	8	-	16	5	1.00	6
26-Aug	9	1	17	5	1.00	6
27-Aug	4	3	4	3	1.00	3
28-Aug	8	2	8	4	1.00	4
29-Aug	7	-	7	2	1.00	3
30-Aug	3	-	9	1	1.00	3
31-Aug	8	-	3	1	1.00	1
1-Sep	6	-	10	1	1.00	2
2-Sep	8	-	4	1	1.00	1
3-Sep	5	-	2	-	1.00	1
4-Sep	6	-	4	2	1.00	2
5-Sep	7	-	2	1	1.00	1
6-Sep	5	-	1	-	1.00	0
7-Sep	8	-	-	-	1.00	-
8-Sep	3	-	-	-	1.00	-
9-Sep	1	-	-	-	1.00	-

Appendix C.8. Commercial sockeye salmon harvest statistics by date, District W-4, 1981-2001.

Date	No. Yrs w/ fishing period on date	Minimum Harvest	Maximum Harvest	Median Harvest	Cum Proportion Harvest	Average Harvest
12-Jun	1	-	-	-	0.00	-
13-Jun	5	4	216	55	0.00	88
14-Jun	2	-	384	192	0.00	192
15-Jun	6	62	440	102	0.00	155
16-Jun	5	-	411	150	0.00	168
17-Jun	2	356	1,119	738	0.00	738
18-Jun	6	117	574	449	0.01	402
19-Jun	4	171	1,678	817	0.01	871
20-Jun	5	111	485	367	0.01	312
21-Jun	6	396	2,322	1,336	0.02	1,447
22-Jun	5	379	1,466	762	0.03	900
23-Jun	4	343	1,741	1,497	0.03	1,270
24-Jun	7	638	3,271	1,643	0.05	1,870
25-Jun	7	732	3,382	1,654	0.06	1,684
26-Jun	5	805	2,777	1,863	0.07	1,892
27-Jun	3	461	4,923	543	0.08	1,976
28-Jun	6	1,908	10,941	2,413	0.10	3,945
29-Jun	6	-	8,067	4,353	0.13	4,293
30-Jun	5	1,360	9,771	2,601	0.16	4,680
1-Jul	5	975	8,625	3,498	0.19	4,483
2-Jul	9	1,242	10,007	2,748	0.22	3,923
3-Jul	7	2,244	7,045	3,604	0.26	4,128
4-Jul	5	627	8,757	5,555	0.28	4,377
5-Jul	9	1,157	15,375	3,650	0.33	4,846
6-Jul	7	1,126	12,133	6,045	0.38	5,969
7-Jul	8	1,211	8,326	3,978	0.42	4,296
8-Jul	7	1,289	9,304	6,008	0.47	5,493
9-Jul	9	1,532	9,824	5,661	0.52	5,381
10-Jul	5	2,229	9,894	4,622	0.55	5,423
11-Jul	10	1,901	8,320	6,018	0.61	5,164
12-Jul	5	1,468	6,827	4,149	0.63	4,148
13-Jul	9	1,842	13,450	5,707	0.69	6,159
14-Jul	9	279	7,490	3,134	0.73	3,311
15-Jul	8	1,240	6,687	4,360	0.77	4,090
16-Jul	7	564	8,537	3,262	0.80	3,872
17-Jul	8	937	5,203	3,667	0.83	3,502
18-Jul	7	657	5,842	1,388	0.84	2,162
19-Jul	7	866	12,850	2,391	0.87	3,720
20-Jul	6	477	4,611	2,120	0.89	2,238
21-Jul	9	477	3,360	1,331	0.91	1,694
22-Jul	6	799	3,537	1,305	0.92	1,610
23-Jul	8	-	4,361	715	0.93	1,529
24-Jul	8	215	2,610	974	0.94	1,084
25-Jul	6	-	2,681	684	0.95	985
26-Jul	6	-	1,580	714	0.96	801

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Date	No. Yrs w/ fishing period on date	Minimum Harvest	Maximum Harvest	Median Harvest	Cum Proportion Harvest	Average Harvest
27-Jul	10	-	2,096	476	0.96	620
28-Jul	6	102	959	741	0.97	631
29-Jul	8	126	997	438	0.97	487
30-Jul	6	19	1,516	431	0.98	554
31-Jul	9	1	730	225	0.98	301
1-Aug	8	42	757	157	0.98	262
2-Aug	8	38	583	189	0.98	235
3-Aug	10	30	408	137	0.99	176
4-Aug	5	3	442	144	0.99	214
5-Aug	11	6	333	156	0.99	158
6-Aug	8	16	321	143	0.99	137
7-Aug	7	30	481	128	0.99	199
8-Aug	8	-	198	68	0.99	79
9-Aug	6	6	307	75	0.99	102
10-Aug	10	10	238	38	0.99	65
11-Aug	6	6	250	61	0.99	99
12-Aug	9	1	200	64	0.99	81
13-Aug	7	-	205	24	1.00	60
14-Aug	9	1	194	34	1.00	67
15-Aug	7	12	166	32	1.00	51
16-Aug	10	-	161	39	1.00	56
17-Aug	8	1	71	17	1.00	23
18-Aug	9	6	146	32	1.00	47
19-Aug	10	-	48	12	1.00	15
20-Aug	7	3	97	31	1.00	35
21-Aug	10	-	139	23	1.00	36
22-Aug	7	1	75	12	1.00	23
23-Aug	8	1	102	15	1.00	31
24-Aug	9	-	52	2	1.00	12
25-Aug	8	-	114	9	1.00	27
26-Aug	9	-	33	5	1.00	11
27-Aug	4	-	30	5	1.00	10
28-Aug	8	-	68	6	1.00	19
29-Aug	7	-	11	6	1.00	5
30-Aug	3	-	58	-	1.00	19
31-Aug	8	-	20	4	1.00	6
1-Sep	6	-	32	3	1.00	8
2-Sep	8	-	14	5	1.00	5
3-Sep	4	-	8	1	1.00	3
4-Sep	6	-	18	3	1.00	5
5-Sep	7	-	16	-	1.00	2
6-Sep	5	-	1	-	1.00	0
7-Sep	8	-	5	-	1.00	1
8-Sep	3	-	3	-	1.00	1
9-Sep	1	-	-	-	1.00	0

Appendix C.9. Commercial coho salmon harvest statistics by date, District W-4, 1981-2001.

Date	No. Yrs w/ fishing period on date	Minimum Harvest	Maximum Harvest	Median Harvest	Cum Proportion Harvest	Average Harvest
12-Jun	1	-	-	-	0.00	-
13-Jun	5	-	-	-	0.00	-
14-Jun	2	-	-	-	0.00	-
15-Jun	6	-	-	-	0.00	-
16-Jun	5	-	-	-	0.00	-
17-Jun	2	-	-	-	0.00	-
18-Jun	6	-	-	-	0.00	-
19-Jun	4	-	-	-	0.00	-
20-Jun	5	-	-	-	0.00	-
21-Jun	6	-	-	-	0.00	-
22-Jun	5	-	-	-	0.00	-
23-Jun	4	-	-	-	0.00	-
24-Jun	7	-	-	-	0.00	-
25-Jun	7	-	-	-	0.00	-
26-Jun	5	-	-	-	0.00	-
27-Jun	3	-	-	-	0.00	-
28-Jun	6	-	-	-	0.00	-
29-Jun	6	-	-	-	0.00	-
30-Jun	5	-	2	-	0.00	0
1-Jul	5	-	-	-	0.00	-
2-Jul	9	-	1	-	0.00	0
3-Jul	7	-	-	-	0.00	-
4-Jul	5	-	-	-	0.00	-
5-Jul	9	-	-	-	0.00	-
6-Jul	7	-	-	-	0.00	-
7-Jul	8	-	-	-	0.00	-
8-Jul	7	-	-	-	0.00	-
9-Jul	9	-	39	-	0.00	5
10-Jul	5	-	5	-	0.00	1
11-Jul	10	-	9	-	0.00	2
12-Jul	5	-	2	-	0.00	0
13-Jul	9	-	38	4	0.00	8
14-Jul	9	-	2	-	0.00	1
15-Jul	8	-	24	3	0.00	8
16-Jul	7	-	39	1	0.00	8
17-Jul	8	-	251	10	0.00	39
18-Jul	7	-	234	3	0.00	41
19-Jul	7	2	88	12	0.00	31
20-Jul	6	3	787	59	0.00	221
21-Jul	9	-	366	19	0.00	94
22-Jul	6	1	250	27	0.00	74
23-Jul	8	-	1,386	39	0.00	244
24-Jul	8	21	2,295	93	0.01	412
25-Jul	6	-	3,482	309	0.01	783

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Date	No. Yrs w/ fishing period on date	Minimum Harvest	Maximum Harvest	Median Harvest	Cum Proportion Harvest	Average Harvest
26-Jul	6	-	704	99	0.01	175
27-Jul	10	-	5,512	389	0.02	1,235
28-Jul	6	29	1,257	342	0.03	543
29-Jul	8	152	7,989	639	0.04	1,538
30-Jul	6	103	3,079	637	0.04	1,226
31-Jul	9	146	5,597	925	0.05	1,407
1-Aug	8	389	5,680	958	0.06	1,604
2-Aug	8	200	12,478	2,167	0.08	3,109
3-Aug	10	592	5,390	1,104	0.10	1,763
4-Aug	5	168	4,293	1,755	0.11	1,670
5-Aug	11	387	19,091	2,987	0.14	4,003
6-Aug	8	1,589	8,436	4,203	0.17	3,957
7-Aug	7	693	8,188	4,614	0.20	4,873
8-Aug	8	-	19,215	2,536	0.24	5,646
9-Aug	6	1,831	11,553	5,486	0.27	6,177
10-Aug	10	1,237	9,428	5,364	0.31	5,438
11-Aug	6	2,458	10,076	6,136	0.35	6,145
12-Aug	9	2,710	10,458	3,894	0.38	5,199
13-Aug	7	1,561	10,961	5,284	0.42	5,442
14-Aug	9	1,671	10,424	3,543	0.45	4,804
15-Aug	7	1,603	15,733	5,095	0.50	7,980
16-Aug	10	1,403	8,299	2,859	0.53	3,843
17-Aug	8	2,008	9,897	5,584	0.57	5,787
18-Aug	9	1,008	9,776	6,197	0.62	5,930
19-Aug	10	-	12,931	4,526	0.66	5,204
20-Aug	7	201	8,728	5,529	0.69	4,969
21-Aug	10	833	9,161	3,489	0.73	4,161
22-Aug	7	955	8,437	4,502	0.75	4,104
23-Aug	8	2,400	11,957	4,528	0.79	5,497
24-Aug	9	432	8,673	3,736	0.82	4,167
25-Aug	8	115	5,308	2,807	0.84	2,627
26-Aug	9	1,419	6,505	4,552	0.87	4,032
27-Aug	4	1,431	5,975	3,687	0.88	3,695
28-Aug	8	1,335	4,684	3,245	0.90	3,083
29-Aug	7	-	3,623	2,701	0.91	2,460
30-Aug	3	1,054	9,431	2,193	0.93	4,226
31-Aug	8	1,427	7,145	2,668	0.95	3,064
1-Sep	6	-	2,565	1,739	0.95	1,620
2-Sep	8	535	5,148	1,454	0.97	2,222
3-Sep	5	-	2,777	600	0.97	1,219
4-Sep	6	-	4,442	1,484	0.98	1,766
5-Sep	7	-	3,799	901	0.99	1,136
6-Sep	5	-	1,769	-	0.99	585
7-Sep	8	-	3,956	305	1.00	960
8-Sep	3	-	1,262	-	1.00	421
9-Sep	1	-	-	-	1.00	-

APPENDIX D

Appendix D.1 Historical estimated salmon run size and commercial exploitation rate, Goodnews River drainage, 1981-2001.

Year	Species	Tower/weir estimate[e]	MF/Weir Index	Goodnews R Escapement	Subsistence Harvest	Commercial Harvest	Total Run Size	Exploitation[a] Rate (% of Run)
1981	Chinook	3,688	[b]	7,766[c]	1,409	7,190	20,053	43
	Sockeye	49,108	[b]	100,029[c]	3,511[d]	40,273	192,921	23
	Chum	21,827	[b]	53,799[c]	-	13,642	89,268	15
1982	Chinook	1,395	[b]	2,937[c]	1,236	9,476	15,044	71
	Sockeye	56,255	[b]	114,587[c]	2,754[d]	38,877	212,473	20
	Chum	6,767	[b]	16,679[c]	-	13,829	37,275	37
1983	Chinook	6,022	36	14,398	1,066	14,117	35,603	43
	Sockeye	25,813	22	69,955	1,518[d]	11,716	109,002	12
	Chum	15,548	[b]	38,323[c]	-	6,766	60,637	11
1984	Chinook	3,260	35	8,743	629	8,612	21,244	43
	Sockeye	32,053	27	67,213	964	15,474	115,704	14
	Chum	19,003	35	117,739	189	14,340	151,271	10
1985	Chinook	2,831	70	7,979	426	5,793	17,029	37
	Sockeye	24,131	11	50,481	704	6,698	82,014	9
	Chum	10,367	32	25,025	348	4,784	40,524	13
1986	Chinook	2,092	57	4,094	555	2,723	9,464	35
	Sockeye	51,069	28	93,228	942	25,112	170,351	15
	Chum	14,764	38	51,910	191	10,355	77,220	14
1987	Chinook	2,272	100	4,490	816	3,357	10,935	38
	Sockeye	28,871	85	51,989	955	27,758	109,573	26
	Chum	17,517	58	37,802	578	20,381	76,278	27
1988	Chinook	2,712	39	5,419	310	4,964	13,405	39
	Sockeye	15,799	30	38,319	1065	36,368	91,551	41
	Chum	20,799	21	39,501	448	33,059	93,807	36
1989	Chinook	1,915	67	2,891	467	2,966	8,239	42
	Sockeye	21,186	60	35,476	869	19,299	76,830	26
	Chum	10,380	28	15,495	760	13,622	40,257	36
1990	Chinook	3,636	[b]	7,656[c]	682	3,303	15,277	26
	Sockeye	31,679	[b]	64,528[c]	905	35,823	132,935	28
	Chum	6,410	[b]	15,799[c]	342	13,194	35,745	38

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Appendix D.1 (page 2 of 3)

Year	Species	Tower/weir estimate[e]	MF/Weir Index	Goodnews R Escapement	Subsistence Harvest	Commercial Harvest	Total Run Size	Exploitation[a] Rate (% of Run)
1991[e]	Chinook	1,952	[b]	4,521[c]	682	912	8,067	20
	Sockeye	47,397	[b]	96,544[c]	900	39,838	184,679	22
	Chum	27,525	[b]	67,844[c]	106	15,892	111,367	14
1992	Chinook	1,903	61	1,854	252	3,528	7,537	50
	Sockeye	27,268	21	52,501	905	39,194	119,868	33
	Chum	22,023	19	16,084	662	18,520	57,289	33
1993	Chinook	2,349	[b]	4,727[c]	488	2,117	9,681	27
	Sockeye	26,452	[b]	54,325[c]	572	59,293	140,642	43
	Chum	14,952	[b]	38,061[c]	133	10,657	63,803	17
1994	Chinook	3,856	[b]	7,866[c]	657	2,570	14,949	22
	Sockeye	55,751	[b]	115,405[c]	652	69,490	241,298	29
	Chum	34,849	[b]	91,653[c]	402	28,477	155,381	
1995	Chinook	4,836	[b]	9,865 [c]	552	2,922	18,175	19
	Sockeye	39,009	[b]	80,749 [c]	787	37,351	157,896	24
	Chum	33,699	[b]	88,628 [c]	329	19,832	142,488	14
1996	Chinook	2,930	[b]	5,977 [c]	526	1,375	10,808	18
	Sockeye	58,264	[b]	120,606 [c]	763	30,717	210, 350	15
	Chum	40,450	[b]	106,384 [c]	326	11,093	158,253	7
1997	Chinook	2,937	51	7,216	449	2,039	12,641	20
	Sockeye	35,530	57	23,462	609	31,451	91,052	35
	Chum	17,296	[b]	45,488 [c]	133	11,729	74,646	16
1998	Chinook	4,584	18	3,797	718	3,675	12,774	34
	Sockeye	47,951	25	14,693	508	27,161	90,313	31
	Chum	28,905	15	24,940	316	14,155	68,316	21
1999	Chinook	3,221	[b]	6,565 [c]	871	1,888	12,545	22
	Sockeye	48,205	[b]	99,727 [c]	872	22,910	171,714	14
	Chum	19,533	[b]	51,361 [c]	281	11,562	82,737	14

-Continued-

Year	Species	Tower/weir estimate[e]	MF/Weir Index	Goodnews R Escapement	Subsistence Harvest	Commercial Harvest	Total Run Size	Exploitation[a] Rate (% of Run)
2000	Chinook	3,295	[b]	6,458 [c]	601	4,442	14,796	34
	Sockeye	42,197	[b]	73,845 [c]	1,028	37,252	154,322	25
	Chum	14,720	[b]	35,475 [c]	280	7,450	57,925	13
2001	Chinook	5,404	46	8,128	853	1,519	16,504	14
	Sockeye	22,495	61	137,364	914	25,654	186,427	14
	Chum	26,829	24	33,902	181	3,412	64,324	6

[a] Commercial and subsistence exploitation.
[b] Incomplete aerial survey results.
[c] Average Middle Fork/Goodnews River escapement estimate ratio for 1983-1989 used to estimate Goodnews River. escapement in years with no aerial survey data.
[d] Subsistence caught chum salmon is included in subsistence sockeye salmon harvest.
[e] Goodnews Tower Project changed to weir project in 1991.

Appendix D.2. Aerial survey results of the Goodnews River drainage, 1980- 2001.

	Middle Fork Goodnews River and Lake				Goodnews River and Lakes			
Year	Chinook	Sockeye	Chum	Coho	Chinook	Sockeye	Chum	Coho
1980	1,228	75,639	1,975	a	1,164	18,926	3,782	a
1981	a	a	a	a	a	a	a	a
1982	1,990	19,160	9,700	a	1,546	2,327	6,300	a
1983	2,600	9,650	a	a	2,500	5,900	a	a
1984	3,245	9,240	17,250	43,925	1,930	12,897	9,172	a
1985	3,535	2,843	4,415	a	2,050	5,470	3,593	a
1986	1,068	8,960	11,850	a	1,249	16,990	7,645	a
1987	2,234	19,786	12,103	11,122	2,222	34,585	9,696	a
1988	637	5,820	3,846	a	1,024	5,831	5,814	a
1989	651	3,605	a	a	1,277	8,044	2,922	a
1990	626	27,689	a	a	a	a	a	a
1991 [b]	a	a	a	a	a	a	a	a
1992	875	10,397	1,950	a	1,012	7,200	3,270	a
1993	a	a	a	a	a	a	a	a
1994	a	a	a	a	a	a	a	a
1995	3,314	a	a	a	a	a	a	a
1996	a	a	a	a	a	a	a	a
1997	3,611	12,610	a	a	1,447	19,843	a	a
1998	578	3,497	2,743	a	731	11,632	3,619	a
1999	a	a	a	a	a	a	a	a
2000	a	a	a	a	a	a	a	a
2001	2,799	12,383	6,945	a	3,561	29,340	7,330	a
Objective [c]	800	5,000	4,000	2,000	1,600	15,000	17,000	15,000

a Information not available.

b Survey past peak.

c Escapement objectives are preliminary and are subject to change as additional data becomes available. Escapement objectives are based on aerial index counts, which do not represent total escapement, but do reflect annual spawner abundance trends when made using standard survey methods under acceptable survey conditions.

Appendix D.3. Historical commercial salmon harvest, Goodnews Bay District, 1968-2001.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1968			5,458			5,458
1969	3,978	6,256	11,631	298	5,006	27,169
1970	7,163	7,144	6,794	12,183	12,346	45,630
1971	477	330	1,771	0	301	2,879
1972	264	924	925	66	1,331	3,510
1973	3,543	2,072	5,017	324	15,781	26,737
1974	3,302	9,357	21,340	16,373	8,942	59,314
1975	2,156	9,098	17,889	419	5,904	35,466
1976	4,417	5,575	9,852	8,453	10,354	38,651
1977	3,336	3,723	13,335	29	6,531	26,954
1978	5,218	5,412	13,764	9,103	8,590	42,087
1979	3,204	19,581	42,098	201	9,298	74,382
1980	2,331	28,632	43,256	7,832	11,748	93,799
1981	7,190	40,273	19,749	11	13,642	80,865
1982	9,476	38,877	46,683	4,673	13,829	113,538
1983	14,117	11,716	19,660	0	6,766	52,259
1984	8,612	15,474	71,176	4,711	14,340	114,313
1985	5,793	6,698	16,498	8	4,784	33,781
1986	2,723	25,112	19,378	4,447	10,355	62,015
1987	3,357	27,758	29,057	54	20,381	80,607
1988	4,964	36,368	30,832	5,509	33,059	110,732
1989	2,966	19,299	31,849	82	13,622	67,818
1990	3,303	35,823	7,804	629	13,194	60,753
1991	912	39,838	13,312	29	15,892	69,983
1992	3,528	39,194	19,875	14,310	18,520	95,427
1993	2,117	59,293	20,014	0	10,657	92,081
1994	2,570	69,490	47,499	18,017	28,477	166,053
1995	2,922	37,351	17,875	39	19,832	78,019
1996	1,375	30,717	43,836	22	11,093	87,043
1997	2,039	31,451	2,983	0	11,729	48,202
1998	3,675	27,161	21,246	411	14,155	66,648
1999	1,888	22,910	2,474	0	11,562	38,834
2000	4,442	37,252	15,531	7	7,450	64,682
2001	1,519	25,654	9,275	0	3,412	39,860
10-year avg.	2,547	39,466	20,465	6,553 [a]	14,937	80,697 [b]
Historical avg	3,980	23,442	20,923	6,672 [a]	12,171	62,597 [b]

[a] Average of even years only

b Total average includes odd years of Pink salmon.

Appendix D.4. Historical commercial effort and opportunity, Goodnews Bay District, 1970-2001

Year	Number of periods	Fishing hours [a]	Permits fished[b]
1970	28	624	35
1971	3	156	16
1972	8	186	14
1973	24	288	21
1974	30	360	49
1975	24	288	50
1976	32	384	40
1977	24	288	34
1978	36	432	35
1979	36	432	30
1980	38	456	48
1981	34	492	48
1982	34	540	48
1983	28	336	79
1984	31	372	77
1985	22	264	69
1986	30	360	86
1987	21	252	69
1988	30	360	125
1989	28	336	88
1990	28	396	82
1991	27	432	72
1992	26	396	111
1993	28	336	114
1994	32	432	116
1995	25	396	118
1996	21	247	53
1997	23	276	54
1998	29	348	50
1999	20	240	73
2000	25	300	46
2001	16	183	32
10-year average	26	340	81
Historical average	27	355	63

[a] Number of hours that fishing was open in the Goodnews Bay District.
[b] Permits that made at least one delivery during the year.

Appendix D.5. Historical commercial salmon exvessel value, Goodnews Bay District, 1990-2001.

Year	Chinook	Sockeye	Coho	Pink	Chum	Total
1990	32,135	263,598	38,910	254	25,767	360,664
1991	8,370	187,622	47,519	14	31,394	274,919
1992	30,688	257,457	75,278	2,913	39,111	405,447
1993	21,351	296,437	95,043	0	28,304	441,135
1994	21,732	309,577	271,687	5,442	41,309	649,747
1995	31,339	175,552	58,061	19	21,427	286,398
1996	5,952	87,427	120,191	4	9,015	222,589
1997	10,867	93,146	9,497	0	9,358	122,868
1998	13,685	100,171	59,102	174	11,133	184,265
1999	9,020	78,800	7,515	0	8,327	103,662
2000	25,614	146,708	34,689	2	6,001	213,014
2001	10,496	68,678	17,089	0	2,586	98,849
10-year avg	$17,862	$173,290	$77,858	$857	$20,538	$290,404

Appendix D.6. Commercial salmon season summary, Goodnews Bay District, 2001.

			Chinook					Sockeye						Coho				Chum				
Date	Deliveries	Permits	# Fish	Lbs	Avg Wt (Lbs)	Avg $/Lbs.	Exvessel Value	# Fish	Lbs	Avg Wt (Lbs)	Avg $/Lbs.	# Fish	Exvessel Value	Lbs	Avg Wt (Lbs)	Avg # Fish	Exvessel value	# Fish	Lbs	Avg Wt (Lbs)	Avg $/Lbs.	Exvessel Value
6/29	35	17	1,022	20,079	19.6	0.35	358	4,286	32,833	7.7	0.35	0	1,500	0	0.0	0.00	0	680	5,596	8.2	0.10	68
7/06	46	26	147	2,803	19.1	0.35	51	6,790	51,748	7.6	0.35	0	2,377	0	0.0	0.00	0	925	7,085	7.7	0.10	93
7/10	27	25	132	2,920	22.1	0.35	46	4,039	32,531	8.1	0.35	0	1,414	0	0.0	0.00	0	300	2,502	8.3	0.10	30
7/13	32	26	60	1,216	20.3	0.35	21	5,014	38,053	7.6	0.35	0	1,755	0	0.0	0.00	0	702	5,116	7.3	0.10	70
7/20	16	15	59	1,064	18.0	0.35	21	1,236	9,233	7.5	0.35	0	433	0	0.0	0.00	0	337	2,330	6.9	0.10	34
7/23	20	18	36	703	19.5	0.27	10	1,635	12,207	7.5	0.33	4	546	35	8.8	0.20	7	341	2,341	6.9	0.10	34
8/01	14	12	23	451	19.6	0.26	6	859	6,519	7.6	0.33	326	286	2,745	8.4	0.20	549	72	528	7.3	0.10	8
8/06	15	14	10	217	21.7	0.35	4	518	3,804	7.3	0.35	497	181	4,086	8.2	0.20	817	18	109	6.1	0.10	2
8/08	9	9	6	112	18.7	0.35	2	407	2,992	7.4	0.35	596	142	5,114	8.6	0.20	1,023	8	57	7.1	0.10	1
8/10	15	14	7	172	24.6	0.35	2	377	2,722	7.2	0.35	671	132	5,853	8.7	0.20	1,171	8	51	6.4	0.10	1
8/15	25	22	4	90	22.5	0.35	1	225	1,671	7.4	0.35	2,468	79	22,220	9.0	0.20	4,444	14	102	7.3	0.10	1
8/18	23	18	3	36	12.0	0.35	1	144	1,040	7.2	0.35	2,637	50	25,507	9.7	0.20	5,101	3	21	7.0	0.10	0
8/22	15	15	7	92	13.1	0.35	2	68	481	7.1	0.35	1,085	24	10,209	9.4	0.20	2,042	1	5	5.0	0.10	0
8/24	13	13	3	36	12.0	0.35	1	56	390	7.0	0.35	991	20	9,679	9.8	0.20	1,936	3	21	7.0	0.10	0
Totals	305	244	1,519	29,991	18.8	0.34	$527	25,654	196,224	7.4	0.35	9,275	$8,939	85,448	8.9	0.20	$17,090	3,412	25,864	7.0	0.10	$342

Appendix D.7. Daily fish passage counts at the Middle Fork Goodnews River weir, 2001

Date	Chinook	Sockeye	Coho	Chum	Pink	Dolly Varden	White Fish
26-Jun	1	118		6			
27-Jun	61	626		71			
28-Jun	134	647		76			18
29-Jun	162	835		104			9
30-Jun	8	571		69			7
1-Jul	21	575		69		5	6
2-Jul	90	1,107		148		0	4
3-Jul	203	1,048		300		3	3
4-Jul	111	1,104		318		3	6
5-Jul	92	903		441		0	5
6-Jul	99	1,467		219		11	5
7-Jul	112	945		602		4	19
8-Jul	226	1,215		609	1	8	18
9-Jul	16	173		200	0	0	4
10-Jul	242	1,471		322	0	3	2
11-Jul	106	768		367	5	6	5
12-Jul	188	1,024		440	7	18	3
13-Jul	334	760		488	0	26	4
14-Jul	194	595		1,486	16	29	11
15-Jul	264	587		1,224	48	15	10
16-Jul	498	506		1,344	72	60	16
17-Jul	151	496		1,176	52	53	11
18-Jul	162	246		1,094	74	50	0
19-Jul	845	521		2,147	93	117	23
20-Jul	28	147		436	17	30	13
21-Jul	66	207		736	35	46	6
22-Jul	53	356		730	39	60	14
23-Jul	44	206		691	49	47	26
24-Jul	54	177		637	84	82	3
25-Jul	30	97		1,058	117	124	10
26-Jul	37	156		696	41	120	19
27-Jul	88	162		1,093	74	194	36
28-Jul	105	149		993	54	181	27
29-Jul	66	115	2	744	59	93	20
30-Jul	27	76	2	432	34	54	18
31-Jul	100	85	21	767	38	86	23
1-Aug	39	68	2	919	41	112	17
2-Aug	6	21	2	478	13	42	13
3-Aug	6	51	4	174	7	12	0
4-Aug	37	53	23	508	14	55	13
5-Aug	78	84	18	466	15	38	7
6-Aug	25	46	33	402	10	37	8
7-Aug	23	26	16	270	26	25	13
8-Aug	14	6	28	181	9	1	17
9-Aug	15	22	87	319	18	19	20
10-Aug	7	4	42	76	0	10	2
11-Aug	1	2	33	87	11	8	3
12-Aug	21	31	64	148	8	6	10
13-Aug	4	82	95	110	8	7	13

continued

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Date	Chinook	Sockeye	Coho	Chum	Pink	Dolly Varden	White Fish
14-Aug	11	29	260	97	11	5	20
15-Aug	21	18	203	72	11	16	18
16-Aug	4	35	141	37	8	13	23
17-Aug	4	16	126	26	2	6	16
18-Aug	0	7	34	9	0	3	11
19-Aug	0	19	272	21	0	12	15
20-Aug	0	14	724	16	2	12	11
21-Aug	0	11	101	6	0	1	10
22-Aug	0	8	102	8	5	1	7
23-Aug	0	7	254	7	2	1	12
24-Aug	0	4	439	3	6	0	1
25-Aug	2	5	426	6	1	13	9
26-Aug	4	16	1,191	10	4	17	19
27-Aug	0	4	646	1	0	7	6
28-Aug	1	4	1,357	1	4	9	6
29-Aug	1	6	558	1	4	20	3
30-Aug	0	2	1,440	3	3	41	6
31-Aug	0	5	1,198	1	7	60	5
1-Sep	1	6	1,162	1	1	107	7
2-Sep	1	2	262	2	4	62	4
3-Sep	1	1	428	1	8	99	2
4-Sep	1	6	1,005	8	6	142	1
5-Sep	2	4	1,585	1	6	180	4
6-Sep	0	12	1,510	3	10	142	5
7-Sep	0	5	272	2	5	71	5
8-Sep	1	1	100	1	2	32	3
9-Sep	0	4	232	1	5	122	15
10-Sep	0	3	118	0	3	21	2
11-Sep	0	3	261	2	2	81	5
12-Sep	0	3	334	0	3	69	0
13-Sep	0	2	141	2	3	47	1
14-Sep	1	3	367	0	4	1	0
15-Sep	0	3	43	0	0	36	0
16-Sep	0	1	65	0	2	32	4
17-Sep	1	1	356	0	0	33	7
18-Sep	0	1	115	0	0	2	6
19-Sep	0	1	102	0	1	4	5
20-Sep	0	2	137	0	2	5	2
21-Sep	0	4	460	6	0	6	2
22-Sep	0	3	272	1	1	36	5
23-Sep	0	4	153	0	0	0	3
24-Sep	0	0	75	0	0	3	4
25-Sep	0	0	62	0	0	16	7
26-Sep	0	0	15	0	0	4	0
27-Sep	0	0	14	1	1	10	4
28-Sep	0	1	23	0	0	3	8
29-Sep	0	0	13	1	0	30	1
30-Sep	0	1	0	0	0	2	0
Totals	5,351	21,024	19,626	26,829	1,328	3,535	850

Appendix D.8. Daily fish passage counts at the Middle Fork Goodnews River weir, 2001

Date	Chinook	Sockeye	Coho	Chum	Pink	Dolly Varden	White Fish
26-Jun	1	118		6			
27-Jun	61	626		71			
28-Jun	134	647		76			18
29-Jun	162	835		104			9
30-Jun	8	571		69			7
1-Jul	21	575		69		5	6
2-Jul	90	1,107		148		0	4
3-Jul	203	1,048		300		3	3
4-Jul	111	1,104		318		3	6
5-Jul	92	903		441		0	5
6-Jul	99	1,467		219		11	5
7-Jul	112	945		602		4	19
8-Jul	226	1,215		609	1	8	18
9-Jul	16	173		200	0	0	4
10-Jul	242	1,471		322	0	3	2
11-Jul	106	768		367	5	6	5
12-Jul	188	1,024		440	7	18	3
13-Jul	334	760		488	0	26	4
14-Jul	194	595		1,486	16	29	11
15-Jul	264	587		1,224	48	15	10
16-Jul	498	506		1,344	72	60	16
17-Jul	151	496		1,176	52	53	11
18-Jul	162	246		1,094	74	50	0
19-Jul	845	521		2,147	93	117	23
20-Jul	28	147		436	17	30	13
21-Jul	66	207		736	35	46	6
22-Jul	53	356		730	39	60	14
23-Jul	44	206		691	49	47	26
24-Jul	54	177		637	84	82	3
25-Jul	30	97		1,058	117	124	10
26-Jul	37	156		696	41	120	19
27-Jul	88	162		1,093	74	194	36
28-Jul	105	149		993	54	181	27
29-Jul	66	115	2	744	59	93	20
30-Jul	27	76	2	432	34	54	18
31-Jul	100	85	21	767	38	86	23
1-Aug	39	68	2	919	41	112	17
2-Aug	6	21	2	478	13	42	13
3-Aug	6	51	4	174	7	12	0
4-Aug	37	53	23	508	14	55	13
5-Aug	78	84	18	466	15	38	7
6-Aug	25	46	33	402	10	37	8
7-Aug	23	26	16	270	26	25	13
8-Aug	14	6	28	181	9	1	17
9-Aug	15	22	87	319	18	19	20
10-Aug	7	4	42	76	0	10	2
11-Aug	1	2	33	87	11	8	3
12-Aug	21	31	64	148	8	6	10
13-Aug	4	82	95	110	8	7	13
14-Aug	11	29	260	97	11	5	20

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Date	Chinook	Sockeye	Coho	Chum	Pink	Dolly Varden	White Fish
15-Aug	21	18	203	72	11	16	18
16-Aug	4	35	141	37	8	13	23
17-Aug	4	16	126	26	2	6	16
18-Aug	0	7	34	9	0	3	11
19-Aug	0	19	272	21	0	12	15
20-Aug	0	14	724	16	2	12	11
21-Aug	0	11	101	6	0	1	10
22-Aug	0	8	102	8	5	1	7
23-Aug	0	7	254	7	2	1	12
24-Aug	0	4	439	3	6	0	1
25-Aug	2	5	426	6	1	13	9
26-Aug	4	16	1,191	10	4	17	19
27-Aug	0	4	646	1	0	7	6
28-Aug	1	4	1,357	1	4	9	6
29-Aug	1	6	558	1	4	20	3
30-Aug	0	2	1,440	3	3	41	6
31-Aug	0	5	1,198	1	7	60	5
1-Sep	1	6	1,162	1	1	107	7
2-Sep	1	2	262	2	4	62	4
3-Sep	1	1	428	1	8	99	2
4-Sep	1	6	1,005	8	6	142	1
5-Sep	2	4	1,585	1	6	180	4
6-Sep	0	12	1,510	3	10	142	5
7-Sep	0	5	272	2	5	71	5
8-Sep	1	1	100	1	2	32	3
9-Sep	0	4	232	1	5	122	15
10-Sep	0	3	118	0	3	21	2
11-Sep	0	3	261	2	2	81	5
12-Sep	0	3	334	0	3	69	0
13-Sep	0	2	141	2	3	47	1
14-Sep	1	3	367	0	4	1	0
15-Sep	0	3	43	0	0	36	0
16-Sep	0	1	65	0	2	32	4
17-Sep	1	1	356	0	0	33	7
18-Sep	0	1	115	0	0	2	6
19-Sep	0	1	102	0	1	4	5
20-Sep	0	2	137	0	2	5	2
21-Sep	0	4	460	6	0	6	2
22-Sep	0	3	272	1	1	36	5
23-Sep	0	4	153	0	0	0	3
24-Sep	0	0	75	0	0	3	4
25-Sep	0	0	62	0	0	16	7
26-Sep	0	0	15	0	0	4	0
27-Sep	0	0	14	1	1	10	4
28-Sep	0	1	23	0	0	3	8
29-Sep	0	0	13	1	0	30	1
30-Sep	0	1	0	0	0	2	0
	46	258	18,894	261	128	1,630	290

1% of chinook escapement was estimated, total escapement is 5,405

7% of sockeye escapement estimated total escapement is 22,606.

Appendix D.9. Commercial chinook salmon catch statistics by date, District W-5, 1981-2001

Date	No. Years w/ fishing period on this date	Minimum harvest	Maximum harvest	Median harvest	Cumulative proportion harvest
12-Jun	0	0	0	0	0.00
13-Jun	1	1,252	1,252	1,252	0.01
14-Jun	0	0	0	0	0.01
15-Jun	1	197	197	197	0.02
16-Jun	2	251	1,096	674	0.03
17-Jun	1	362	362	362	0.04
18-Jun	3	387	1,706	1,158	0.07
19-Jun	2	296	390	343	0.08
20-Jun	5	139	2,642	404	0.13
21-Jun	2	1,298	1,535	1,417	0.16
22-Jun	2	792	1,591	1,192	0.18
23-Jun	3	583	1,639	788	0.22
24-Jun	3	476	988	620	0.24
25-Jun	4	340	1,896	1,154	0.29
26-Jun	4	0	1,247	384	0.31
27-Jun	5	173	3,944	388	0.39
28-Jun	5	307	1,307	807	0.43
29-Jun	6	330	1,857	918	0.49
30-Jun	7	242	1,551	460	0.55
1-Jul	2	77	1,156	617	0.56
2-Jul	9	166	710	318	0.60
3-Jul	5	156	1,065	391	0.63
4-Jul	3	177	2,301	637	0.66
5-Jul	8	95	1,809	290	0.70
6-Jul	7	100	496	235	0.72
7-Jul	10	132	1,119	334	0.77
8-Jul	9	93	495	190	0.80
9-Jul	7	99	351	143	0.81
10-Jul	6	132	326	201	0.83
11-Jul	9	53	408	162	0.84
12-Jul	5	107	737	313	0.86
13-Jul	8	60	182	100	0.87
14-Jul	8	54	514	154	0.89
15-Jul	8	0	354	84	0.90
16-Jul	8	54	294	85	0.91
17-Jul	5	41	210	76	0.92
18-Jul	7	0	217	71	0.92
19-Jul	6	0	71	47	0.93
20-Jul	8	38	192	83	0.93
21-Jul	8	24	68	51	0.94
22-Jul	4	19	228	66	0.94
23-Jul	10	17	97	37	0.95

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Date	No. Years w/ fishing period on this date	Minimum harvest	Maximum harvest	Median harvest	Cumulative proportion harvest
24-Jul	6	20	77	40	0.95
25-Jul	8	0	82	27	0.95
26-Jul	6	0	41	21	0.96
27-Jul	9	19	122	32	0.96
28-Jul	7	5	22	14	0.96
29-Jul	6	15	157	29	0.96
30-Jul	8	16	73	19	0.97
31-Jul	6	7	34	20	0.97
1-Aug	9	0	78	23	0.97
2-Aug	8	0	27	17	0.97
3-Aug	9	9	102	24	0.98
4-Aug	6	3	23	10	0.98
5-Aug	9	4	54	17	0.98
6-Aug	8	4	79	10	0.98
7-Aug	5	8	43	15	0.98
8-Aug	10	0	60	11	0.98
9-Aug	5	7	21	11	0.98
10-Aug	12	5	78	12	0.99
11-Aug	6	5	20	8	0.99
12-Aug	8	4	47	15	0.99
13-Aug	6	0	36	5	0.99
14-Aug	9	2	41	8	0.99
15-Aug	7	4	26	7	0.99
16-Aug	10	0	17	6	0.99
17-Aug	7	2	22	7	0.99
18-Aug	10	0	10	5	0.99
19-Aug	7	3	14	8	1.00
20-Aug	6	1	12	7	1.00
21-Aug	10	0	11	5	1.00
22-Aug	7	3	17	7	1.00
23-Aug	5	0	9	6	1.00
24-Aug	9	0	17	2	1.00
25-Aug	7	0	13	4	1.00
26-Aug	10	0	8	4	1.00
27-Aug	5	0	13	3	1.00
28-Aug	9	0	11	3	1.00
29-Aug	6	2	9	4	1.00
30-Aug	4	1	4	2	1.00
31-Aug	8	0	6	1	1.00
1-Sep	6	0	7	1	1.00
2-Sep	7	0	5	2	1.00
3-Sep	5	0	3	2	1.00
4-Sep	5	0	6	1	1.00
5-Sep	6	0	5	1	1.00
6-Sep	3	0	0	0	1.00
7-Sep	8	0	1	0	1.00
8-Sep	4	0	2	0	1.00
9-Sep	1	0	0	0	1.00

Appendix D.10. Commercial sockeye salmon catch statistics by date, District W-5, 1981-2001.

Date	No. Years w/ fishing period on this date	Minimum harvest	Maximum harvest	Median harvest	Cumulative proportion harvest
12-Jun	0	0	0	0	0.00
13-Jun	1	27	27	27	0.00
14-Jun	0	0	0	0	0.00
15-Jun	1	70	70	70	0.00
16-Jun	2	125	696	411	0.00
17-Jun	1	744	744	744	0.00
18-Jun	3	281	596	348	0.00
19-Jun	2	478	551	515	0.01
20-Jun	5	102	1,989	523	0.01
21-Jun	2	967	1,280	1,124	0.01
22-Jun	2	569	1,074	822	0.02
23-Jun	3	1,029	2,701	1,466	0.02
24-Jun	3	596	2,120	1,892	0.03
25-Jun	4	852	2,087	1,348	0.04
26-Jun	4	0	1,984	1,814	0.05
27-Jun	5	685	3,040	1,664	0.06
28-Jun	5	2,008	4,163	2,932	0.08
29-Jun	6	1,412	4,286	2,714	0.11
30-Jun	7	2,037	8,143	4,651	0.15
1-Jul	2	1,143	3,376	2,260	0.16
2-Jul	9	1,818	8,198	3,021	0.21
3-Jul	5	1,427	5,510	2,589	0.24
4-Jul	3	1,598	7,674	2,154	0.25
5-Jul	8	1,254	5,195	2,854	0.29
6-Jul	7	2,346	7,886	3,430	0.34
7-Jul	10	2,057	6,283	3,654	0.39
8-Jul	9	1,231	6,261	4,362	0.44
9-Jul	7	2,167	4,518	3,566	0.48
10-Jul	6	1,759	8,140	3,628	0.52
11-Jul	9	1,397	3,898	3,247	0.56
12-Jul	5	1,444	16,753	2,762	0.60
13-Jul	8	1,954	5,275	3,538	0.64
14-Jul	8	1,039	4,876	2,891	0.67
15-Jul	8	0	8,860	2,791	0.71
16-Jul	8	902	4,969	1,940	0.74
17-Jul	5	1,598	3,936	2,978	0.76
18-Jul	7	0	3,049	1,673	0.77
19-Jul	6	0	2,830	1,917	0.79
20-Jul	8	395	3,852	1,557	0.81
21-Jul	8	507	2,559	1,309	0.83
22-Jul	4	614	2,207	1,830	0.84
23-Jul	10	162	3,966	1,074	0.86

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Date	No. Years w/ fishing period on this date	Minimum harvest	Maximum harvest	Median harvest	Cumulative proportion harvest
24-Jul	6	588	2,458	1,304	0.87
25-Jul	8	0	1,678	472	0.88
26-Jul	6	0	1,804	908	0.89
27-Jul	9	166	2,903	534	0.90
28-Jul	7	254	1,743	555	0.91
29-Jul	6	342	1,312	720	0.91
30-Jul	8	84	1,982	384	0.92
31-Jul	6	300	1,180	524	0.93
1-Aug	9	0	859	271	0.93
2-Aug	8	0	969	296	0.94
3-Aug	9	36	975	578	0.94
4-Aug	6	59	739	189	0.95
5-Aug	9	94	932	308	0.95
6-Aug	8	34	518	282	0.96
7-Aug	5	138	692	382	0.96
8-Aug	10	0	926	284	0.96
9-Aug	5	46	485	135	0.96
10-Aug	12	18	659	332	0.97
11-Aug	6	0	174	90	0.97
12-Aug	8	17	564	263	0.97
13-Aug	6	0	347	158	0.98
14-Aug	9	4	409	234	0.98
15-Aug	7	5	422	210	0.98
16-Aug	10	0	395	110	0.98
17-Aug	7	4	498	151	0.98
18-Aug	10	0	318	99	0.99
19-Aug	7	5	360	117	0.99
20-Aug	6	0	214	118	0.99
21-Aug	10	1	373	93	0.99
22-Aug	7	7	353	104	0.99
23-Aug	5	0	193	88	0.99
24-Aug	9	1	298	56	0.99
25-Aug	7	0	353	89	1.00
26-Aug	9	0	204	66	1.00
27-Aug	5	0	148	28	1.00
28-Aug	9	1	186	51	1.00
29-Aug	6	1	155	54	1.00
30-Aug	4	0	171	36	1.00
31-Aug	8	0	88	51	1.00
1-Sep	6	0	158	47	1.00
2-Sep	7	2	69	36	1.00
3-Sep	5	0	72	21	1.00
4-Sep	5	0	61	19	1.00
5-Sep	6	0	61	0	1.00
6-Sep	3	0	0	0	1.00
7-Sep	8	0	63	3	1.00
8-Sep	4	0	0	0	1.00
9-Sep	1	0	0	0	1.00

Appendix D.11. Commercial coho salmon catch statistics by date, salmon, District W-5,1981-2001.

Date	No. Years w/ fishing period on this date	Minimum harvest	Maximum harvest	Median harvest	Cumulative proportion harvest
12-Jun	0	0	0	0	0.00
13-Jun	1	0	0	0	0.00
14-Jun	0	0	0	0	0.00
15-Jun	1	0	0	0	0.00
16-Jun	2	0	0	0	0.00
17-Jun	1	0	0	0	0.00
18-Jun	3	0	0	0	0.00
19-Jun	2	0	0	0	0.00
20-Jun	5	0	0	0	0.00
21-Jun	2	0	0	0	0.00
22-Jun	2	0	0	0	0.00
23-Jun	3	0	0	0	0.00
24-Jun	3	0	0	0	0.00
25-Jun	4	0	0	0	0.00
26-Jun	4	0	0	0	0.00
27-Jun	5	0	0	0	0.00
28-Jun	5	0	0	0	0.00
29-Jun	6	0	0	0	0.00
30-Jun	7	0	0	0	0.00
1-Jul	2	0	0	0	0.00
2-Jul	9	0	0	0	0.00
3-Jul	6	0	0	0	0.00
4-Jul	3	0	0	0	0.00
5-Jul	8	0	0	0	0.00
6-Jul	7	0	0	0	0.00
7-Jul	10	0	0	0	0.00
8-Jul	9	0	0	0	0.00
9-Jul	7	0	0	0	0.00
10-Jul	6	0	0	0	0.00
11-Jul	9	0	0	0	0.00
12-Jul	5	0	1	0	0.00
13-Jul	8	0	0	0	0.00
14-Jul	8	0	1	0	0.00
15-Jul	8	0	13	0	0.00
16-Jul	8	0	18	1	0.00
17-Jul	5	0	0	0	0.00
18-Jul	7	0	18	0	0.00
19-Jul	6	0	11	0	0.00
20-Jul	8	0	111	1	0.00
21-Jul	8	0	18	4	0.00
22-Jul	4	0	4	1	0.00
23-Jul	10	1	195	9	0.00

-continued-

Appendix D.11. (page 2 of 2)

Date	No. Years w/ fishing period on this date	Minimum harvest	Maximum harvest	Median harvest	Cumulative proportion harvest
24-Jul	6	0	33	11	0.00
25-Jul	8	0	632	52	0.00
26-Jul	6	0	65	5	0.00
27-Jul	9	0	1,059	68	0.01
28-Jul	7	3	153	5	0.01
29-Jul	6	5	343	47	0.01
30-Jul	8	1	1,461	178	0.02
31-Jul	6	24	364	100	0.02
1-Aug	9	0	2,811	171	0.03
2-Aug	8	0	1,491	107	0.03
3-Aug	9	66	3,943	165	0.05
4-Aug	6	2	949	419	0.05
5-Aug	9	126	2,069	593	0.06
6-Aug	8	23	4,275	478	0.08
7-Aug	5	231	881	755	0.09
8-Aug	10	97	3,090	996	0.11
9-Aug	5	108	2,240	891	0.12
10-Aug	12	463	4,198	1,218	0.16
11-Aug	6	127	6,065	1,241	0.19
12-Aug	8	1,225	6,488	1,920	0.22
13-Aug	6	673	4,852	1,593	0.25
14-Aug	9	1,325	4,644	2,354	0.29
15-Aug	7	735	5,999	2,338	0.33
16-Aug	10	336	7,321	1,947	0.38
17-Aug	7	1,390	6,880	3,002	0.43
18-Aug	10	0	3,864	1,742	0.46
19-Aug	7	1,394	5,628	3,397	0.51
20-Aug	6	68	9,590	1,675	0.54
21-Aug	10	968	4,967	1,897	0.59
22-Aug	7	629	6,731	2,591	0.63
23-Aug	5	1,308	5,306	3,417	0.67
24-Aug	9	991	5,520	3,346	0.72
25-Aug	7	468	3,590	1,739	0.75
26-Aug	9	15	3,249	1,918	0.78
27-Aug	5	1,101	6,625	2,519	0.81
28-Aug	9	1,016	3,529	1,896	0.84
29-Aug	6	725	3,402	1,747	0.87
30-Aug	4	1,483	3,730	1,986	0.88
31-Aug	8	1,084	3,143	1,713	0.92
1-Sep	6	604	2,778	1,415	0.93
2-Sep	7	576	3,233	1,484	0.95
3-Sep	5	377	2,309	1,167	0.97
4-Sep	5	374	2,685	1,044	0.98
5-Sep	6	0	2,202	684	0.99
6-Sep	3	0	1,715	0	0.99
7-Sep	8	0	2,310	221	1.00
8-Sep	4	0	0	0	1.00
9-Sep	1	0	0	0	1.00

APPENDIX F

Appendix F.1. Commercial freshwater finfish fishery catch data, Kuskokwim Area, 1977-2001.

Year	Number of Fishermen[b]	Number Caught[a] Whitefish[c]	Burbot	Total Weight (lbs) Whitefish	Burbot	Total Value ($) Whitefish	Burbot	Total
1977	3	718	0	d	0	952	0	952
1978	b	1,735	0	6,017	0	d	0	d
1979	b	3,219	0	11,211	0	d	0	d
1980	4	603	0	2,173	0	830	0	830
1981	4	1,197	0	4,620	0	2,310	0	2,310
1982	5	1,512	0	6,219	0	2,856	0	2,856
1983	0	0	0	0	0	0	0	0
1984	2	0	651	0	d	0	d	d
1985	5	555	1,829	2,275	2,016	1,137	455	1,592
1986	3	0	0	0	3,428	0	857	857
1987	4	417	0	1,260	0	1,008	0	1,008
1988	3	d	d	2,588	7	1,991	3	1,994
1989	7	178	282	583	270	501	597	1,098
1990	11	1,664	d	5,502	10	5,166	5	5,171
1991	5	1,413	41	2,442	256	2,412	197	2,609
1992	6	2,124	18	6,309	86	6,285	43	6,328
1993	5	2,509	0	5,208	0	4,898	0	4,898
1994	3	2,393	0	4,905	0	4,345	0	4,345
1995	1	d	0	2,363	0	2,507	0	2,507
1996	2	3,139	0	4,915	0	4,776	0	4,776
1997	14	4,447	0	5,770	0	4,832	0	4,832
1998	0	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0	0
2000	0	0	0	0	0	0	0	0
2001	0	0	0	0	0	0	0	0

a Does not include catches incidental to the commercial salmon fishery.

b Does not include fishers who delivered catches incidental to the commercial salmon fishery.

c Includes cisco, pike and blackfish (weight only).

d Data not available.

APPENDIX G

Appendix G.1. Commercial miscellaneous saltwater finfish fishery catch data, Kuskokwim Area, 1988-2001.

Year	Number of Fishermen	Species	Number Caught	Total weight (lbs)	Total value ($)
1988	4	Tom Cod[a]	[b]	439	878
1989	2	Tom Cod[a]	[b]	591	1,180
1990	1	Tom Cod[a]	300	221	442
1991	2	Tom Cod[a]	[b]	1,356	2,690
1992	1	Tom Cod[a]	[b]	303	303
1993	0	-- --	0	0	0
1994	1	Tom Cod[a]	[b]	100	160
1995	0	-- --	0	0	0
1996	1	Tom Cod[a]	[b]	713	1,426
1997	1	Tom Cod[a]	[b]	250	500
1998	0	-- --	0	0	0
1999	0	-- --	0	0	0
2000	0	-- --	0	0	0
2001	0	-- --	0	0	0

a Tom Cod is the local name for Saffron Cod (Eleginus gracilis).
b Data not available.

APPENDIX H

Appendix H.1. Estimated biomass and commercial harvest of Pacific herring in the Kuskokwim Area fishing districts, Alaska, 1981-2001.

District	Estimated Biomass (st)	Harvest				Roe%	Estimated Value ($1000's)	Exploitation Rate (%)
		Sac-roe	Bait	Waste	Total			
2001								
Security Cove	5206	1024	0	0	1024	10.7	110	19.7
Goodnews Bay	5755	45	0	0	45	11.3	6	0.8
Cape Avinof	3486	231	0	0	231	9.8	23	6.6
Nelson Is.	6057	678	0	0	678	10.4	71	11.2
Nunivak Is.	5657	-	-	-	-	-	-	-
Total	26161	1978	0	0	1978	10.5	209	7.6
2000								
Security Cove	5237	284	15	0	299	10.7	62	5.7
Goodnews Bay	6348	19	1	1	20	9.2	3	0.3
Cape Avinof	3210	370	7	0	377	9.6	71	11.8
Nelson Is.	4672	754	52	1	807	9.8	150	17.3
Nunivak Is.	3487	41	0	0	41	9.9	12	1.2
Total	22954	1468	75	2	1544	9.9	299	6.7
1999								
Security Cove	5261	1016	56	1	1072	11.0	338	20.4
Goodnews Bay	6896	1332	33	0	1366	11.3	301	19.8
Cape Avinof	3555	516	18	0	533	11.0	185	15.0
Nelson Is.	6655	1267	97	2	1366	11.2	430	20.5
Nunivak Is.	3319	-	-	-	-	-	-	-
Total	25686	4131	204	3	4337	11.1	1254	16.9
1998								
Security Cove	4017	1012	0	0	1012	11.5	232	25.2
Goodnews Bay	4064	831	0	0	831	11.3	188	20.5
Cape Avinof	4287	656	0	0	656	11.6	152	15.3
Nelson Is.	7136	1250	0	0	1250	11.8	296	17.5
Nunivak Is.	3778	2	0	0	2	9.8	0.4	0.1
Total	23282	3751	0	0	3751	11.6	868	16.1
1997								
Security Cove	4640	884	3	5	892	12.5	221	19.2
Goodnews Bay	4752	805	0	0	805	14.2	228	16.9
Cape Avinof	4616	687	0	0	687	11.5	157	14.9
Nelson Is.	7909	778	0	0	778	12.7	198	9.8
Nunivak Is.	3801	-	-	-	-	-	-	-
Total	25718	3154	3	5	3163	12.7	804	12.3
1996								
Security Cove	6867	1795	59	5	1859	11.6	1251	27.1
Goodnews Bay	6315	1191	13	0	1204	12.5	895	19.1
Cape Avinof	4500	820	0	0	820	13.4	659	18.2
Nelson Is.	6638	986	44	0	1030	11.4	679	15.5
Nunivak Is.	4197	61	40	0	101	9.9	39	2.4
Total	28517	4854	156	5	5014	12.1	3523	17.6
1995								
Security Cove	6702	1292	0	0	1292	12.3	956	19.3
Goodnews Bay	4224	1051	0	3	1054	13.5	848	25.0
Cape Avinof	3627	485	0	0	485	12.5	363	13.4
Nelson Is.	7754	1113	0	0	1113	10.6	711	14.4
Nunivak Is.	4579	33	7	0	41	11.0	22	0.9
Total	26886	3975	7	3	3985	12.2	2900	14.8
1994								
Security Cove	7638	-	-	-	-	-	-	-
Goodnews Bay	5679	1061	0	1	1062	12.3	391	18.7
Cape Avinof	2827	427	0	0	427	12.2	156	15.1
Nelson Is.	5564	713	4	0	717	11.0	235	12.9
Nunivak Is.	4921	14	0	0	14	8.6	4	0.3
Total	26629	2215	4	1	2220	11.8	787	8.3

- continued -

District	Estimated Biomass (st)	Harvest Sac-roe	Bait	Waste	Total	Roe%	Estimated Value ($1000's)	Exploitation Rate (%)
1993								
Security Cove	6995	5	0	0	5	12.8	2	0.1
Goodnews Bay	6211	945	9	0	954	10.3	293	15.4
Cape Avinof	2837	206	9	0	215	12.0	75	7.6
Nelson Is.	4944	613	52	74	739	10.6	198	14.9
Nunivak Is.	5176	-	-	-	-	-	-	-
Total	26163	1769	70	74	1913	10.6	568	7.3
1992								
Security Cove	7773	697	127	10	834	9.2	285	10.7
Goodnews Bay	5572	711	29	0	740	9.5	286	13.3
Cape Avinof	3446	443	9	0	452	9.9	178	13.1
Nelson Is.	5275	188	52	6	246	8.3	78	4.7
Nunivak Is.	5703	7	20	0	27	8.5	4	0.5
Total	27769	2046	237	16	2299	9.4	830	8.3
1991								
Security Cove	4434	561	9	0	570	9.3	208	12.9
Goodnews Bay	4387	259	4	0	263	8.9	93	6.0
Cape Avinof	2083	240	27	0	267	9.5	94	12.8
Nelson Is.	2385	-	-	-	-	-	-	-
Nunivak Is.	3903	17	42	0	59	7.5	9	-
Total	17192	1077	82	0	1159	9.2	404	6.7
1990								
Security Cove	2650	174	60	0	234	8.7	94	8.8
Goodnews Bay	2577	427	28	0	455	12.2	314	17.7
Cape Avinof	2020	49	1	0	50	12.0	35	2.5
Nelson Is.	2705	-	-	-	-	-	-	-
Nunivak Is.	422	-	-	-	-	-	-	-
Total	10374	650	89	0	739	11.2	443	7.1
1989								
Security Cove	2830	544	10	0	554	9.4	256	19.6
Goodnews Bay	4044	453	162	0	616	8.4	335	15.2
Cape Avinof	2777	90	39	0	129	8.0	54	4.6
Nelson Is.	3316	122	100	11	233	8.5	57	7.0
Nunivak Is.	617	79	37	0	116	9.4	42	18.8
Total	13584	1289	347	11	1647	8.9	744	12.1
1988								
Security Cove	4906	324	0	0	324	9.3	362	6.6
Goodnews Bay	4479	473	10	0	483	8.0	463	10.8
Cape Avinof	4108	348	0	0	348	8.6	264	8.5
Nelson Is.	7152	760	15	0	775	9.2	713	10.8
Nunivak Is.	2800	-	-	-	-	-	-	-
Total	23445	1905	25	0	1930	8.8	1802	8.2
1987								
Security Cove	2300	312	1	0	313	9.7	242	13.6
Goodnews Bay	2000	179	142	0	321	7.3	133	16.1
Nelson Is.	8100	915	8	0	923	9.2	661	11.4
Nunivak Is.	4400	254	160	0	414	7.8	231	9.4
Total	16800	1660	311	0	1971	8.9	1267	11.7
1986								
Security Cove	3700	747	4	0	751	11.2	535	20.3
Goodnews Bay	3000	554	3	0	557	10.4	325	18.6
Nelson Is.	7300	852	34	0	886	10.3	428	12.1
Nunivak Is.	6000	469	42	0	511	10.1	213	8.5
Total	20000	2622	83	0	2705	10.5	1501	13.5
1985								
Security Cove	4900	703	0	30	733	10.1	355	15.0
Goodnews Bay	4300	711	0	13	724	8.7	309	16.8
Nelson Is.	9500	967	10	0	977	10.6	527	10.3
Nunivak Is.	5700	349	9	0	358	8.9	146	6.3
Total	24400	2730	19	43	2792	9.8	1337	11.4

- continued -

District	Estimated Biomass (st)	Harvest				Roe%	Estimated Value ($1000's)	Exploitation Rate (%)
		Sac-roe	Bait	Waste	Total			
1984								
Security Cove	5100	325	0	10	335	11.8	110	6.6
Goodnews Bay	4100	667	0	50	717	10.1	168	17.5
Total	9200	992	0	60	1052	10.7	278	11.4
1983								
Security Cove	6400	966	107	0	1073	9.4	443	16.8
Goodnews Bay	3200	426	9	0	435	9.4	185	13.6
Total	9600	1392	116	0	1508	9.4	628	15.7
1982								
Security Cove	5100	707	106	0	813	9.3	271	15.9
Goodnews Bay	2600	437	49	0	486	9.5	188	18.7
Total	7700	1144	155	0	1299	9.4	459	16.9
1981								
Security Cove	8300	1150	23	0	1173	8.1	347	14.1
Goodnews Bay	4300	558	99	0	657	7.7	196	15.3
Total	12600	1708	122	0	1830	8.0	543	14.5

Appendix H.2. Number of buyers and fishers participating in Kuskokwim Area Pacific herring fisheries, Alaska, 1981-2001.

Year	District	Number of Buyers	Number of Fishers	Number of Deliveries
2001	Security Cove	6	56	209
	Goodnews Bay	1	23	51
	Cape Avinof	1	45	208
	Nelson Island	1	49	236
	Nunivak Island		No commercial opening	
2000	Security Cove	11	79	162
	Goodnews Bay	2	57	87
	Cape Avinof	1	86	399
	Nelson Island	4	86	354
	Nunivak Island	1	35[a]	3
1999	Security Cove	7	87	242
	Goodnews Bay	5	94	679
	Cape Avinof	3	117	656
	Nelson Island	4	94	483
	Nunivak Island		No commercial opening	
1998	Security Cove	9	78	255
	Goodnews Bay	2	84	580
	Cape Avinof	2	109	561
	Nelson Island	3	86	829
	Nunivak Island	1	7	7
1997	Security Cove	14	222	528
	Goodnews Bay	3	139	933
	Cape Avinof	2	145	560
	Nelson Island	3	105	348
	Nunivak Island	1	12[b]	0
1996	Security Cove	14	326	601
	Goodnews Bay	5	182	1,186
	Cape Avinof	2	161	833
	Nelson Island	3	109	515
	Nunivak Island	2	24	85
1995	Security Cove	12	106	257
	Goodnews Bay	4	127	878
	Cape Avinof	2	93	537
	Nelson Island	4	100	575
	Nunivak Island	2	13	46
1994	Security Cove		No commercial opening	
	Goodnews Bay	2	103	683
	Cape Avinof	1	85	502
	Nelson Island	3	104	409
	Nunivak Island	1	12	14

-Continued-

Year	District	Number of Buyers	Number of Fishers	Number of Deliveries
	Nunivak Island		No commercial opening	
1992	Security Cove	6	58	178
	Goodnews Bay	3	78	375
	Cape Avinof	2	121	335
	Nelson Island	3	85	222
	Nunivak Island	1	14	23
1991	Security Cove	6	52	100
	Goodnews Bay	2	103	137
	Cape Avinof	1	137	463
	Nelson Island		No commercial opening	
	Nunivak Island	2	17	31
1990	Security Cove	9	52	77
	Goodnews Bay	3	126	530
	Cape Avinof	1	101	109
	Nelson Island		No commercial opening	
	Nunivak Island		No commercial opening	
1989	Security Cove	8	104	108
	Goodnews Bay	6	138	533
	Cape Avinof	3	147	335
	Nelson Island	4	162	438
	Nunivak Island	3	45	210
1988	Security Cove	4	31	51
	Goodnews Bay	6	60	309
	Cape Avinof	1	98	485
	Nelson Island	7	174	547
	Nunivak Island		No commercial opening	
1987	Security Cove	8	65	67
	Goodnews Bay	4	117	191
	Nelson Island	9	235	633
	Nunivak Island	4	61	341
1986	Security Cove	11	88	199
	Goodnews Bay	5	104	319
	Nelson Island	4	163	1,099
	Nunivak Island	5	36	284
1985	Security Cove	6	107	268
	Goodnews Bay	5	83	420
	Nelson Island	6	143	776
	Nunivak Island	5	37	273

-Continued-

Year	District	Number of Buyers	Number of Fishers	Number of Deliveries
1984	Security Cove	4	38	86
	Goodnews Bay	4	130	390
1983	Security Cove	6	94	312
	Goodnews Bay	4	84	225
1982	Security Cove	3	107	250
	Goodnews Bay	3	84	297
1981	Security Cove	7	113	311
	Goodnews Bay	5	175	479

a Number of permit holders in cooperative
b Estimated number of permit holders

Appendix H.3. Commercial harvest, effort and value of Pacific herring in Kuskokwim Area fishing districts, Alaska, 1981-2001.

Year	District	Estimated Harvest (st)	Number of permits	Hours fished	CPUE[a] (st)	Estimated Value	Income per permit
2001	Security Cove	1024	56	17.5	1.04	$110,000	$1,964
	Goodnews Bay	45	23	16.0	0.12	$6,000	$261
	Cape Avinof	231	45	63.0	0.08	$23,000	$511
	Nelson Is.	678	49	25.5	0.54	$66,000	$1,347
	Nunivak Is.	--	--	--	--	--	--
2000	Security Cove	284	79	16.0	0.22	$54,386	$688
	Goodnews Bay	20	57	27.0	0.01	$3,318	$58
	Cape Avinof	366	86	59.0	0.07	$68,532	$797
	Nelson Is.	813	86	20.0	0.47	$154,280	$1,794
	Nunivak Is.	40	34	93.0	0.01	$11,880	$349
1999	Security Cove	1072	97	9.0	1.23	$338,000	$3,485
	Goodnews Bay	1366	94	49.0	0.30	$301,000	$3,202
	Cape Avinof	533	117	51.0	0.09	$185,000	$1,581
	Nelson Is.	1366	94	22.0	0.66	$430,000	$4,574
	Nunivak Is.	--	--	--	--	--	--
1998	Security Cove	1012	78	28.5	0.46	$202,340	$2,594
	Goodnews Bay	831	84	79.0	0.13	$166,220	$1,979
	Cape Avinof	656	109	44.0	0.14	$131,120	$1,203
	Nelson Is.	1250	86	76.0	0.19	$235,900	$2,743
	Nunivak Is.	202	7	6.0	4.81	$440	$63
1997	Security Cove	892	222	10.5	0.38	$221,000	$995
	Goodnews Bay	805	139	65.0	0.09	$228,000	$1,640
	Cape Avinof	687	145	26.0	0.18	$157,000	$1,083
	Nelson Is.	778	105	10.0	0.74	$198,000	$1,886
	Nunivak Is.	0	12	70.0	0.00	$0	$0
1996	Security Cove	1859	326	5.5	1.04	$1,252,270	$3,841
	Goodnews Bay	1204	182	45.0	0.15	$893,900	$4,912
	Cape Avinof	820	161	57.0	0.09	$659,280	$4,095
	Nelson Is.	1031	109	25.0	0.38	$676,624	$6,208
	Nunivak Is.	101	24	256.0	0.02	$38,234	$1,593
1995	Security Cove	1292	106	12.0	1.02	$956,000	$9,019
	Goodnews Bay	1054	127	56.0	0.15	$848,000	$6,677
	Cape Avinof	485	93	48.0	0.11	$363,000	$3,903
	Nelson Is.	1113	100	28.0	0.40	$710,000	$7,100
	Nunivak Is.	41	13	387.0	0.01	$22,000	$1,692
1994	Security Cove	--	--	--	--	--	--
	Goodnews Bay	1062	103	38.0	0.27	$391,000	$3,796
	Cape Avinof	427	85	62.0	0.08	$156,000	$1,835
	Nelson Is.	717	104	26.0	0.27	$235,000	$2,260
	Nunivak Is.	14	12	6.0	0.19	$4,000	$333
1993	Security Cove	5	9	24.5	0.02	$2,000	$222
	Goodnews Bay	954	63	123.0	0.12	$293,000	$4,651
	Cape Avinof	215	97	106.0	0.02	$75,000	$773
	Nelson Is.	739	73	63.5	0.16	$198,000	$2,712
	Nunivak Is.	--	--	--	--	--	--
1992	Security Cove	834	58	34.0	0.42	$285,000	$4,914
	Goodnews Bay	740	78	29.0	0.33	$286,000	$3,667
	Cape Avinof	452	121	12.0	0.31	$178,000	$1,471
	Nelson Is.	246	85	10.0	0.29	$78,000	$918
	Nunivak Is.	27	14	6.0	0.32	$4,000	$286

- continued -

Appendix H.3. (page 2 of 2)

Year	District	Estimated Harvest (st)	Number of permits	Hours fished	CPUE[a] (st)	Estimated Value	Income per permit
1991	Security Cove	570	52	12.0	0.91	$208,000	$4,000
	Goodnews Bay	263	103	4.0	0.64	$93,000	$903
	Cape Avinof	267	137	28.0	0.07	$94,000	$686
	Nelson Is.	--	--	--		--	--
	Nunivak Is.	59	17	12.0	0.29	$9,000	$529
1990	Security Cove	234	52	7.0	0.64	$94,000	$1,808
	Goodnews Bay	455	126	32.0	0.11	$314,000	$2,492
	Cape Avinof	50	101	3.0	0.17	$35,000	$347
	Nelson Is.	--	--	--		--	--
	Nunivak Is.	--	--	--		--	--
1989	Security Cove	554	104	4.0	1.33	$256,000	$2,462
	Goodnews Bay	616	138	50.0	0.09	$335,000	$2,428
	Cape Avinof	129	147	194.0	0.00	$54,000	$367
	Nelson Is.	233	162	15.0	0.10	$57,000	$352
	Nunivak Is.	116	45	186.0	0.01	$42,000	$933
1988	Security Cove	324	31	23.5	0.44	$362,000	$11,677
	Goodnews Bay	483	60	40.0	0.20	$463,000	$7,717
	Cape Avinof	348	98	88.5	0.04	$264,000	$2,694
	Nelson Is.	775	174	7.5	0.59	$713,000	$4,098
	Nunivak Is.	--	--	--		--	--
1987	Security Cove	313	65	13.0	0.37	$242,000	$3,723
	Goodnews Bay	321	117	11.0	0.25	$133,000	$1,137
	Nelson Is.	923	235	6.0	0.65	$661,000	$2,813
	Nunivak Is.	414	61	39.0	0.17	$231,000	$3,787
1986	Security Cove	751	88	73.0	0.12	$535,000	$6,080
	Goodnews Bay	557	104	53.0	0.10	$325,000	$3,125
	Nelson Is.	886	163	40.0	0.14	$428,000	$2,626
	Nunivak Is.	511	36	156.0	0.09	$213,000	$5,917
1985	Security Cove	733	107	125.0	0.05	$335,000	$3,131
	Goodnews Bay	724	83	130.0	0.07	$309,000	$3,723
	Nelson Is.	977	143	44.0	0.16	$527,000	$3,685
	Nunivak Is.	358	37	228.0	0.04	$146,000	$3,946
1984	Security Cove	335	38	345.0	0.03	$110,000	$2,895
	Goodnews Bay	717	130	139.0	0.04	$168,000	$1,292
1983	Security Cove	1073	94	87.0	0.13	$443,000	$4,713
	Goodnews Bay	435	84	278.0	0.02	$185,000	$2,202
1982	Security Cove	813	107	302.0	0.03	$271,000	$2,533
	Goodnews Bay	486	84	314.0	0.02	$188,000	$2,238
1981	Security Cove	1173	113	90.0	0.12	$347,000	$3,071
	Goodnews Bay	657	175	133.0	0.03	$196,000	$1,120

a CPUE = catch per permit per hour fished

APPENDIX S

Appendix S. 1. 2001 Kuskokwim Area Subsistence Salmon Harvest Calendar.

May 2001
Dear Subsistence Fishers:

Please write in the number of salmon that people in your household caught for subsistence. Include all subsistence salmon that were caught, including those you gave to others and those you may have caught for dog food.. DO NOT include salmon that you sold when commercial fishing.

Our address is on the back of this calendar. When finished fishing, you can fold the calendar so that our return address is visible. DO NOT PUT POSTAGE ON THE CALENDAR WHEN YOU RETURN IT TO US. We have paid the postage. (lk)

This calendar is sent to you by the Subsistence Division of the Alaska Department of Fish and Game in Bethel.

NAME

Thank you for helping to document subsistence harvests. If you have any questions, please call (907) 543-3100.

Bulk Rate
U. S. Postage
Paid
Fairbanks, AK
Permit No. 8

MAY 2001 SUBSISTENCE SALMON CALENDAR

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	13	14	15	16	17	18	19
TARYAQVAK =	King _____	King _____	King _____	King _____	King _____	King _____	King _____
IQALLUK =	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____
SAYAK =	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____
	20	21	22	23	24	25	26
CHINOOK =	King _____	King _____	King _____	King _____	King _____	King _____	King _____
	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____
"RED SALMON" =	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____
	27	28	29	30	31		
	King _____	King _____	King _____	King _____	King _____		
	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____		
	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____		

JUNE 2001 SUBSISTENCE SALMON CALENDAR

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	[1913] "Below us was spread an amazing and assuredly unforgettable sight. The still water of the river [Salmon River in the Aniak River drainage] was packed bank to bank with tremendous king salmon, as close together as they could be. They had been in fresh water long enough that each had turned a blood-red color. The slight movement of their fins created an illusion that a river of blood was flowing before us. I shall never forget it." Nuggets and Beans by Harold and Zora Peckenpaugh, 1973					1 King _____ Chum _____ Sockeye_____	2 King _____ Chum _____ Sockeye_____
	3	4	5	6	7	8	9
TARYAQVAK =	King _____	King _____	King _____	King _____	King _____	King _____	King _____
IQALLUK =	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____
SAYAK =	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____
	10	11	12	13	14	15	16
CHINOOK =	King _____	King _____	King _____	King _____	King _____	King _____	King _____
	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____
"RED SALMON" =	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____
	17	18	19	20	21	22	23
	King _____	King _____	King _____	King _____	King _____	King _____	King _____
	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____
	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____
	24	25	26	27	28	29	30
	King _____	King _____	King _____	King _____	King _____	King _____	King _____
	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____	Chum _____
	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____	Sockeye_____

Thank you for helping to document subsistence harvests. If you have any questions, please call (907) 543-3100. Please return the calendar when you are finished subsistence salmon fishing for 2001. (lk)

NAME LABLE

JULY 2001 SUBSISTENCE SALMON CALENDAR

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1	2	3	4	5	6	7
TARYAQVAK =	King	King	King	King	King	King	King
IQALLUK =	Chum	Chum	Chum	Chum	Chum	Chum	Chum
SAYAK =	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye
	8	9	10	11	12	13	14
CHINOOK =	King	King	King	King	King	King	King
	Chum	Chum	Chum	Chum	Chum	Chum	Chum
"RED SALMON" =	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye
	15	16	17	18	19	20	21
	King	King	King	King	King	King	King
	Chum	Chum	Chum	Chum	Chum	Chum	Chum
	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye
	22	23	24	25	26	27	28
	King	King	King	King	King	King	King
	Chum	Chum	Chum	Chum	Chum	Chum	Chum
	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye
QAKIIYAK =	Coho	Coho	Coho	Coho	Coho	Coho	Coho
	29	30	31				
	King	King	King				
	Chum	Chum	Chum				
	Sockeye	Sockeye	Sockeye				
"SILVER SALMON"=	Coho	Coho	Coho				

AUGUST 2001 SUBSISTENCE SALMON CALENDAR

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				1	2	3	4
				King	King	King	King
				Chum	Chum	Chum	Chum
				Sockeye	Sockeye	Sockeye	Sockeye
				Coho	Coho	Coho	Coho
	5	6	7	8	9	10	11
TARYAQVAK =	King	King	King	King	King	King	King
IQALLUK	Chum	Chum	Chum	Chum	Chum	Chum	Chum
SAYAK =	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye
QAKIIYAK =	Coho	Coho	Coho	Coho	Coho	Coho	Coho
	12	13	14	15	16	17	18
CHINOOK =	Chum	Chum	Chum	Chum	Chum	Chum	Chum
"RED SALMON" =	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye
"SILVER SALMON"=	Coho	Coho	Coho	Coho	Coho	Coho	Coho
	19	20	21	22	23	24	25
	Chum	Chum	Chum	Chum	Chum	Chum	Chum
	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye
	Coho	Coho	Coho	Coho	Coho	Coho	Coho
	26	27	28	29	30	31	
	Chum	Chum	Chum	Chum	Chum	Chum	
	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	
	Coho	Coho	Coho	Coho	Coho	Coho	

SEPTEMBER 2001 SUBSISTENCE SALMON CALENDAR

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
IQALLUK =	* In light of the available spawning grounds, salmon productivity is relatively low, compared to other areas of the state and the Pacific coast. Quality, not quantity, is the asset of the Arctic, Yukon and Kuskokwim fisheries. The king, coho and chum salmon packs have been graded the highest quality. It is hoped that more A-Y-K salmon will find their way into specialty canned-cured packs and premium quality frozen-fresh markets." ADFG Annual Report: Arctic – Yukon – Kuskokwim Area, 1964						1
SOCKEYE =							Chum
QAKIIYAK =							Sockeye
							Coho
	2	3	4	5	6	7	8
IQALLUK =	Chum	Chum	Chum	Chum	Chum	Chum	Chum
SOCKEYE =	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye
QAKIIYAK =	Coho	Coho	Coho	Coho	Coho	Coho	Coho
	9	10	11	12	13	14	15
	Chum	Chum	Chum	Chum	Chum	Chum	Chum
"RED SALMON" =	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye
"SILVER SALMON"=	Coho	Coho	Coho	Coho	Coho	Coho	Coho
	16	17	18	19	20	21	22
	Chum	Chum	Chum	Chum	Chum	Chum	Chum
	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye
	Coho	Coho	Coho	Coho	Coho	Coho	Coho
	23	24	25	26	27	28	29
	Chum	Chum	Chum	Chum	Chum	Chum	Chum
	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye	Sockeye
	Coho	Coho	Coho	Coho	Coho	Coho	Coho

Appendix S. 2. 2001 Kuskokwim Area Subsistence Salmon Harvest Survey Form.

Division of Subsistence, Bethel

COMM. ID# _____

Chinook= "*taryaqvak*," Chum= "*iqalluk*," Sockeye= "*sayak*," Coho= "*qakiiyaq*"

HHID# _____

KUSKOKWIM AREA 2001

POST-SEASON SUBSISTENCE SALMON HOUSEHOLD HARVEST SURVEY

* (Questions marked with an asterisk are asked of all households interviewed) lk

Community: _____ Household Head Name: _____

Survey Date: 10 11 , 2001 Name of Person Interviewed: HH, _____

Interviewer: SM CB . Household P.O. Box: _____

Was this household in community last year?: No ___ Yes___

***1. Did this household catch salmon for subsistence use this year?** No___ (go to # 3) Yes___

2. May I have your salmon calendar? (If household fished without using calendar, go to # 7)

Picked up by interviewer ___ (go to # 10) Mailed it to ADFG ___ Didn't get one ___

Didn't use ___ Lost or unavailable ___

***3. Does this household usually subsistence fish for salmon?** No___ Yes___

HOUSEHOLD DIDN'T FISH (Household was not involved in harvesting/catching salmon)

4. Did this household help another household process ("put up") salmon?

No ___ (go to # 17) Yes ___: (Names, HHIDs) _____

5. Please estimate how many salmon all of you processed ("put up").

CHINOOK_____ ("kings") CHUM_____ ("dogs") SOCKEYE_____ ("reds") COHO_____ ("silvers") Could not estimate_____

6. Please estimate how many salmon were for your household only.

CHINOOK_____ ("kings") CHUM_____ ("dogs") SOCKEYE_____ ("reds") COHO_____ ("silvers")

(Go to Question 17)

HOUSEHOLD FISHED, ADF&G *DOES NOT HAVE* CALENDAR

7. Did other households fish with you? No ___ Yes ___: (Names, HHIDs) _____

8. Please estimate how many salmon your household (or all households together) caught.

(Ask about Coho salmon and also salmon already eaten, frozen, given to other households, sent to friends, and dog food)

CHINOOK_____ ("kings") CHUM_____ ("dogs") SOCKEYE_____ ("reds") COHO_____ ("silvers") Salmon are included with Households _____

9. Please estimate how many salmon were for your household only.

CHINOOK_____ ("kings") CHUM_____ ("dogs") SOCKEYE_____ ("reds") COHO_____ ("silvers") ALL_____ PERCENT _____

(Go to Question 15)

HOUSEHOLD FISHED, ADF&G *DOES HAVE* CALENDAR

10. Are all of the salmon this household caught written on the calendar? No_____ Yes ___

(Ask about Coho salmon and also salmon already eaten, frozen, given to other households, sent to friends, and dog food)

11. How many additional salmon, not written on the calendar, were caught?

CHINOOK_____ ("kings") CHUM_____ ("dogs") SOCKEYE_____ ("reds") COHO_____ ("silvers")

12. Did other households fish with you? No ___ (go to # 15) Yes ___: (Names, HHIDs)

(This Block is continued on back side)

COFFING, ADFG Sep. 2001

LK 2001

13. Are the salmon they caught written on your calendar? No ____ Yes ____

14. Please estimate how many salmon were for your household only. All_____ Percent _____

CHINOOK_____ CHUM_____ SOCKEYE_____ COHO_____

(Go to Question 15) .....

FISHING GEAR (For subsistence fishing households only)

15A. What type(s) of fishing gear was used for catching subsistence salmon this year?

Drift net ____, Set Net ____, Rod and Reel ____, Fishwheel ____, Spear ____, Sein ____

15B. What mesh size (gill net) was used for catching King Salmon this year? _____(inches)

16. How many salmon did your household catch and keep with Rod and Reel this year?

CHINOOK_____ CHUM_____ SOCKEYE_____ COHO_____

COMMERCIAL FISHING

***17. Does this household commercial fish?** No ____ (go to # 21), Yes ____

If yes, where ? ___Kuskokwim River or Bay ___Yukon Area ___Bristol Bay

18. Were all of the salmon caught when commercial fishing sold or were some brought home to eat or processed for subsistence? All were sold ____ Some were used for subsistence ____

19. How many commercially caught salmon were used for subsistence?

CHINOOK_____ CHUM_____ SOCKEYE_____ COHO_____

20. Are those salmon listed on the calendar or included in the catch numbers you gave me?

Yes____, No ____

HOUSEHOLD SIZE

***21. How many people live in this household now ?** _____

DOG FOOD (For subsistence fishing households only)

22. Did this household catch salmon for dogfood?

Yes ____ No ____ (go to # 26) Only backbones/heads/guts/scraps _____ (go to # 25)

23. How many salmon? CHUM_____ ("dogs") SOCKEYE_____ ("reds") COHO_____ ("silvers")

24. Are the salmon caught for dogfood included on your calendar or in the estimates you gave me ?

Yes _____, No _____

25. What do you think about the subsistence fishing schedule this past summer? (4 days open, 3 closed)

_____

_____

_____

_____

_____

26. (For subsistence fishing households only)

How was subsistence salmon fishing for your household this year?

Kings: __ Very Good __ Average __ Poor If Poor, why? _____

Chums: __ Very Good __ Average __ Poor If Poor, why? _____

Sockeye: __ Very Good __ Average __ Poor If Poor, why? _____

Coho: __ Very Good __ Average __ Poor If Poor, why? _____

A summary of this survey will be sent to you next spring (May).

Appendix S.3. 2001 Kuskokwim Area Subsistence Salmon Harvest Survey Postcard.

Dear Kuskokwim Area Resident,

Please take a moment to answer the questions on the back side of this card and drop it in the mail to us. No stamp is necessary, postage is already paid. We will mail you a subsistence salmon harvest summary in Spring after the survey data is compiled.

We appreciate your help to document subsistence salmon harvests. We use this information to help the Board of Fisheries and the Department of Fish and Game make informed management decisions affecting the Kuskokwim Area. Your household harvest information remains confidential. Please call if you have any questions.

Thank you,

Subsistence Division
Room 214, BNC Complex
Bethel (543-3100)

(correct your address if necessary)
NAME:_____
P.O. BOX:_____
CITY, STATE:_____
ZIPCODE:_____

Did your household harvest salmon for subsistence use this year?
(include any salmon kept for subsistence when commercial fishing) Yes___ No___

How many subsistence salmon did your household harvest?
(include salmon eaten, given away, frozen, dried, smoked, canned, or for dogfood)

Chinook_____ (King salmon) Chum_____ (Dog salmon) Sockeye_____ (Red salmon) Coho_____ (Silver salmon)

What type(s) of gear did your household use to catch subsistence salmon ?
Set net_____ Drift net_____ Fishwheel____ Rod and reel_____

How was subsistence salmon fishing for your household this year?

King:	Very good	Average	Poor, If Poor, why_____
Sockeye:	Very good	Average	Poor, If Poor, why_____
Chum:	Very good	Average	Poor, If Poor, why_____
Coho:	Very good	Average	Poor, If Poor, why_____